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LECTURES
ON
VETERINARY MEDICINE,
DELIVERED IN THE
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BY
MR. YOUATT.

LECTURE XXXIII.

THE FRONTAL BONES OF CATTLE, SHEEP, SWINE, AND DOGS.

THE horn is the principal weapon of offence belonging to the ox. To enable him to use it effectually, it is necessary that it should be firmly based on the head. It is to give sufficient and secure attachment to the horn that the frontal bones of the ox have that great development of surface and substance which we see in the specimens before us.

The great Extent of the Frontal Bones.—The frontal bones in this animal reach from the nasals to what we have called the occipital ridge or crest in the horse; but that crest is here formed by the union of the frontal and parietal bones, so that the parietal appears on the upper and fore part of the head, only at this ridge; behind, it occupies the situation of the superior part of the occipital bone in the horse; and on each side it is deeply buried in the temporal fossæ, while the occipital bone is depressed far below the ridge, and has comparatively little volume.

The frontal Sinuses extending through the whole of the Frontals.—This immense expanse of bone, were it solid, would be most inconveniently and fatiguingly heavy to the animal, and therefore we find not only a separation of the plates of the bone, constituting the frontal sinuses which I have described in the horse, but extending from the place of the commencement of the frontal sinus in the horse to the summit of the head, and even below that, through the parietal and the occipital bones, to the foramen magnum, and likewise continued almost to the tip of the horn. There is a strong and perfect septum, as in the horse, between the sinuses on each side, reaching from commencement of the sinus to the foramen magnum. The other septa are imperfect, as in the horse, so that there is one continuous cavity or sinus, on each side, from the inner angle of the eye to the great foramen, and the summit of the horn. All these connected cells are lined by a continuation of the schneiderian membrane, and their extent accounts for the more serious character which nasal gleet, and other affections of this membrane, assume in cattle, and for the frequent accumulations of pus about the root of the horn, and particularly at the posterior part of it, and which we are sometimes obliged to evacuate by perforating the horn.

The Blood-vessels and Nerves of the Forehead.—It will be seen that the supra-orbital foramen must necessarily open into the frontal sinus, and that the nerve and artery which supply the forehead must pass through a portion of that cavity: and that as they have a greater surface to supply, they must be considerably larger than in the horse. In fact there are usually two foramina on each side; and as the increased size of the artery and nerve would render them more prominent, they are lodged in a depression or sulcus, extending both above and below, until they divide into smaller branches less liable to injury.

In the polled variety of oxen, the frontals reach to and below the parietal crest; but the diploe is not so great, yet the frontal sinuses are considerably larger than in the horse. This, however, varies much in the different breeds of polled cattle.

I shall not enter into a full description of these bones, as in the horse, but content myself with the points of difference.

Difference in the Formation of the Frontal Bones, compared with those of the Horse.—The orbitar process, as you will see in these crania, is not so developed as in the horse. It presents a much narrower and sharper surface externally, and its breadth is from without, inwards. It is small and weak compared with that of the horse, because the upper and outer portion of the orbit of

the eye is defended from injury by its very situation, while it is the part most exposed to danger in the horse; and it abuts upon, not the temporal bone as in the horse, but a bifurcation of the malar bone, and does not enter at all into the composition of the zygomatic arch. That arch, depressed in its situation in the ox, needs not the frontal bone to give it curvature and strength, for the food of this animal is gathered more at leisure, and the process of rumination is slowly and sleepingly performed, and there is not wanted so much bulk of temporal muscle, nor such extensive motion of the coronoid process of the lower jaw. The orbitar process is united to the upper bifurcation of the malar bone by a suture both squamous and serrated. Its union with the parietal—there is but one parietal in the ox—is found at the summit or ridge of the head, and deep within the temporal fossæ.

The Growth of the Horn.—The greatest variation, however, between the frontals of the horse and of most breeds of oxen consists in their prolongation in the form of the internal or bony part of the horn. In the fœtus of three months, there is no bony enlargement at the situation of the future horn; but it soon afterwards begins to be visible, and at the seventh month there is a distinct tubercle raising the skin. This continues to grow, forcing its way through the integument, and carrying with it the cuticle, which by degrees hardens over it.

The Dropping of the Cuticle.—The cuticle continues to cover the horn until the beast gets twelve or fifteen months old; and then it begins to peel off in laminæ or scales, discovering the horn beneath smooth and glossy. The detachment of the cuticle is soon perfect towards the tip of the horn, but a portion of it continues to cling round the base; and even at three years of age some of the cuticle remains there in the form of a ring, and successive rings are afterwards added year by year, marking the age of the animal,—but of this presently.

The great Vascularity of the Horn.—The horn, as it is commonly called, is composed of an elongation or process of the external plate of the frontal, covered by a cartilaginous investment or defence. This bony process, in its prolongation from the frontal, contains likewise a continuation of the cells of that bone, and it is vascular to an extraordinary degree. Its surface is furrowed and perforated by innumerable vessels, which are designed not only for the nourishment of the bone itself, but of the horn by which it is covered. It is on account of this great vascularity of the bone, that, when the horn is broken, there is often so much hemorrhage, and which the surgeon finds it very difficult to arrest. A veterinary friend, who was compelled to amputate the horn of an ox on account of an enormous bony excrescence that was forming on it, told me that the blood spouted out in a stream as big as his finger, and which he could only stop by the long application of a large budding-iron.

Why great Inflammation follows a Fracture of the Horn.—The continuation of the frontal sinuses through the horn will also enable us to account for the violent inflammation which often follows a fractured horn. The injury of the membrane would be a sufficient cause of inflammation; but air is admitted, not indeed into a cavity from which it had before been altogether excluded—it is not a serous membrane—but where it had not free access, and the unaccustomed stimulus produces great irritation. Tetanus is not an unfrequent consequence of a neglected fracture of the horn. Farriers and cowleeches are properly anxious to close the opening. They place over it plaster upon plaster of tar or pitch, not merely to restrain the hemorrhage, but to exclude the air.

The Horn never perfectly reproduced.—The bone of the horn once broken off is never reproduced, but if any partial fracture has taken place, union is most easily effected between the divided edges by careful bandaging. I recollect one case in which the horny covering was torn off, and half of the bone likewise broken off. It was replaced after the lapse of a few minutes, and perfect union was speedily accomplished. Nature often attempts to restore a lost portion of the frame, but the process is irregular, a misshapen mass of bone alone is here formed on the fractured part. I have one that weighed, when first separated, no less than thirty-seven pounds. The horny covering is generally reproduced in young beasts. There is considerable hemorrhage, which, however, gradually ceases, and the bone is surrounded by a layer, more or less thick, of coagulated blood. This by degrees hardens and forms a case for the bone. Presently another process commences at the base of the bone:—a dense flexible substance of the colour of the hair of the forehead appears—it thickens, hardens, and becomes good horn—it extends up the bone—it displaces this temporary crust as it proceeds, and at length covers the whole of the bone, and becomes almost as perfect as the original horn.

Composition of the Horny Covering.—The covering of the bone differs little in construction from the horn of the foot of the horse. It is composed principally of coagulated albumen with a small portion of gelatine, and about a half per cent of phosphate of lime; indeed, when either the horn or the hoof is calcined, there is scarcely more

than $\frac{1}{100}$ part of earthy matter. The albumen is somewhat greater in quantity in the horn of the ox, and hence its superior hardness. It is divided by maceration, and even mechanically into numerous laminæ or plates, but no nerves or blood-vessels have, after the most careful injection, been traced into it, although they doubtless exist there.

Towards the base of the horn the covering is very thin. It seems to be a continuation of the cuticle. After the most careful examination, it does not appear to be separable from the cuticle, but the process of maceration will distinctly separate them.

How is the Horn produced?—It has been disputed whence or in what way the horn is produced. Some have contended that, as the crust of the horse's hoof is principally secreted from the coronary ligament, so the horny covering of the bullock is secreted by, or is a prolongation of, the cuticle at the base. That a portion of it is derived from the integument at the base cannot be doubted. It was the original covering of the bone; and the rings, which increase yearly in number and recede from the root of the horn, clearly point out this origin; but as the horn recedes from the base, it thickens very much, and this thickening, and indeed the greater portion of the horny covering, is secreted from the vascular substance underneath.

The Interposed Vascular Substance.—The connexion between the horn and its bony base, is more simple than that between the hoof and the os pedis. There are no laminæ or lamellæ, fleshy and horny, both elastic, and one extensible, the one received into the other, forming a great extent of union, and the strongest possible union, yet which would by the elongation of one of the parts adopt itself to the varying superincumbent weight. There is no weight here—no necessity for elongation; and therefore we only find a dense, vascular, filamentous, reticulated substance surrounding the bone; and there is a corresponding filamentous reticulated substance on the interior of the horn—appearing to be horn partly formed, but with numerous irregular edges, and papillæ, and sulci, corresponding with the irregularities of the opposed surface. When the horn is first separated from the bone, the adaptation of the filamentous substance of its interior to the irregularities of the fleshy substance beneath is very striking. From this vascular substance the horn derives the greater part of its nutriment. If a portion of the horn is raised from the substance underneath, a whitish mucous secretion will soon appear in the form of little papillæ or points; which will become more numerous, and approximate and coalesce, and harden and form a thin layer of imperfect horn. There are evidently escaping from it, as plain to the eye as are the furrows of the bone, a multitude of vessels, which we can trace to the softer interior part of the horn, but not further. Some have fancied that they have traced numerous fibriculi, nervous or vascular, escaping from the papillæ of the elastic cushion belonging to the bones, and ramifying over, or penetrating into, the interior surface of the horn.

The Heat at the Base of the Horn a Test of the Degree of Fever.—The thinness of the horn at the base enables us to account for the common practice of farriers and cow-leeches, of placing the hand on the root of the horn, in order to judge of the degree of fever; and they do ascertain it with considerable correctness, for the skin is thin, and the bone beneath is highly vascular. It is covered by a mesh-work of vessels, and the temperature of the frame, being one indication of the degree of fever, is at once evident: this bone is likewise lined by a continuation of the schneiderian membrane, which would sympathise with any intense affection of the thoracic viscera.

Great Tenderness at the Root of the Horns.—Brutal fellows are too apt to strike the ox on the root of the horn. The thin covering over a vascular and sensible part is an inadequate defence, and the animal suffers great pain from the blow. It is said that some foul-hardy persons, armed with a stout stick, will not shrink from the attack of the most ferocious bull. A few smart blows on the root of the horn will inflict so much pain, that the animal will retreat from the combat.

Strange way of Modelling the Horn.—On account of the thinness of the horn at this part, and the imperfect formation of the supporting bone at an early age, some miscreants have undertaken to give any desired form and direction to the horn. The process is painful enough, for the horn is softened by the application of hot irons about its root; and it is said that many of the beautifully-turned horns, which are so much admired in various breeds, had their shape and curve artificially given to them.

This art, however, is not confined to European brutes. Mr. Barrow tells us that the long horns of the oxen in the south of Africa are often trained by the Namaquas and other tribes so as to twist in spiral curves and other fanciful forms, and that this is managed by the means of hot irons.

The French Method of applying Poultices at the Root of the Horn.—Influenced by this thinness of the covering of the bone of the horn at its base, the French recommend fomentations and poultices around the root of the horn for inflammatory affections of the head. This does not appear to be a very scientific mode of proceeding, for the thin part runs

but a little way; and then there is considerable thickness of bone before we arrive at the membrane of the sinuses within. A poultice or a fomentation could hardly have much effect over so small a space, and through the horn and bone.

Different Breeds distinguished by the Horns.—The shape of the horn is one and not the least distinguishing characteristic of the different breeds of cattle. Thus we have the coarse hair, the large hoof, the depth of fore-quarter, and the long spreading horn of the Lancashire. The Cheshire and the Gloucestershire are but varieties, and no improvements of the Lancashire. The Leicestershire, with its thinner skin, and rounder form and smaller bone, betrays the same origin; the little Kyloes seem to be a branch of the same race. Of the short horns there are numerous and valuable families in the Yorkshire, the Durham, the Northumberland, and the Holderness; the diminutive Scottish runt, and the little Alderney, with its crumpled horn: while the Devonshire with its red colour and thin neck, and clean head, and wide hips, but narrow chine, and too flat ribs; and the somewhat larger Sussex, and the still bulkier Herefordshire, have horns of an intermediate length. Then there are the polled cattle of many a varying form and character, from the Suffolk Dun, with its profusion of milk, to the stinted Galloway, the parent perhaps of the breed, and, although little, good as a milker and for the butcher too.

The enormous Horns of some Breeds.—In some foreign breeds, the horns of cattle attain an almost incredible size. The oxen of the Galla country, and the northern part of central Africa, although considerably smaller than the majority of English oxen, have horns nearly four feet in length, and which would hold ten quarts. The Burmese oxen, which are much larger, have singular horns of a half-spiral form. Captain Clapperton says, that "the corneous external coat is very soft, distinctly fibrous, and at the base not much thicker than a human nail; the osseous case full of vascular grooves, and the inside very cellular, the pair together scarcely weighing four pounds; yet they are three feet seven inches in length, two feet in circumference at the base, and one foot six inches midway towards the tip. The longest horn, however, is that of the great Arnee, or Indian buffalo, of an angular form, eighteen inches in circumference at the base, and more than six feet in length.

The influence of Sex on the Horns.—The horns vary with the sex—the short, straight, strong, glossy horn of the bull; the longer, weaker, and branching horn of the ox, and that changing so much with the period of castration; and the more delicate and variously-curved horn of the cow, are objects of every day's observation. The slow growth of the horn of the bull, compared with the rapid development of horn after castration, is a fact deserving of notice, especially as being altogether contrary to the appearance of the horns in other animals;—but the consideration of this belongs more properly to the generative system.

The Age of Cattle indicated by the Horn.—The horn is to a certain degree indicative of the age. At three years old the cuticular covering of the whole of the horn, except at its base, has dropped off, and is not afterwards renewed; a portion of it, however, as I have already described, resembling a ridge or ring of thicker horn, seeming to mark the different layers of the horn, is seen a little above the root, this is forced *downward*, and a new ring appears lower down on each succeeding year; so that if you count these ridges or rings, and add two to them, you will have the age of the beast. The first of these ridges or rings is always the most distinct, especially in the cow, and marks the extent and form of the horn at two years old. The successive rings mark the separation of the horn from the cuticle during each year. The rings, however, are not to be traced in every beast, and they sometimes present a confused character, and seem to run into one another. The two or three first may be distinct enough, but those which follow are nothing more than little irregularities of surface. It should also be remembered, that it is not always that the horns on each side tell the same story, especially in aged beasts. An apparent difference of one year is not at all unusual, and I once saw two more plain and palpable rings on one side than on the other; and to this it may be added, that it is very easy for the dishonest chapman to rasp off one or two, and give a false appearance of youth. We find in the teeth more satisfactory marks of the age, and where no roguery can lead us astray. The rasp and the polisher are oftener used about the horns than many persons are aware. The purchaser likes to see a small and smooth and glossy horn; it is considered to be an indication of blood and of condition, and it is often given to many a beast that has no other pretension to either. The ugly spreading horn can always be reduced a little in its length, and proportionably a great deal more in its bulk.

Larvæ in the Frontal Sinuses.—On account of the vast extent of cavity from the communication between all the partitions of the sinus, the ox occasionally suffers much from the larva of a species of fly which creeps up the nose and lodges in the sinus. He suffers more than the sheep from this cause, but not so frequently, for the frontal sinuses

of the ox seem to be more the accidental than the natural and regular habitation of these insects.

Collections of Pus in the Frontal Sinuses.—He is, however, sometimes seen in great pain, holding his head low, and carrying it on one side. This is not from the irritation of these insects, but from the pus which has been effused within the sinuses, collecting about the root of the horn. If the horn is cut off, a very great quantity of matter often escapes, or, at all events, the inflammation is much relieved by the copious bleeding that inevitably follows.

THE FRONTAL BONES OF SHEEP.

In the sheep the frontal bones are less developed. They are more convex both in the horned and polled variety; and in both of them the parietal bone, as these specimens will show you, is permitted to occupy its usual situation on the roof of the cranium, and the ridge is formed by the occipital bone. The ridge or crest is considerably depressed in both. A very small portion only of the bone actually covering the brain is exposed to concussion, when the sheep violently butt each other; and if that which has the brain beneath it is not protected as in the horse by the yielding resistance of the temporal muscle, it is more effectually preserved by being lowered out of the way of danger.

Singular Difference in the Sinuses of the Sheep and the Ox.—The bony support of the horn springs, as in the ox, from the frontal bone, but much nearer to and a little above the orbit of the eye. The frontal sinus in the polled sheep is proportionably smaller than in the horse; there is a singular and irregular depression on each side where the horn should have sprung, which limits the extent of the sinus backwards; but in the horned sheep the sinus reaches, as in the ox, to the very tip of the horn. In neither is there any separation of the plates of the bone at the posterior part of the frontal in the young animal; but when the horn is nearly grown, the sinus penetrates through the frontal, but never reaches the parietal. This is a singular difference in the construction of these bones in our two-horned servants the ox and the sheep.

Variety in the Form of the Horn.—Although the breeds of sheep are not nominally distinguished by the form of the horn, yet the difference in the size and shape of it is much greater than in the ox. It is sufficient to hint at the round bold horn of the Dorset standing from the head; that of the Wilts bending inwards towards the cheek; the spiral and contorted horn of the Heath sheep; and the strangely-convoluted one of the Norfolk, sometimes nearly a yard in length if unwound, and a full foot in circumference at the base. The best breeds, however, the Lincoln, and the Leicester, and the Cotswold, and the Ryeland, and the South Downs, and many others, are horn less; and a shrewd grazier will tell us that they are the better for being so, for that which would go to the nutriment of a comparatively useless horn, is devoted to the production of flesh, and fat, and wool; yet some of the horned ewes, as the Dorsets, are the best milkers, and particularly selected in the rearing of house lamb.

Varieties in the Horns of Foreign Breeds.—Among some of the foreign sheep, this difference of size and shape is very curious. The Asiatic Argali has horns nearly four feet long, and weighing upwards of thirty pounds; at the base they occupy the greater part of the back of the head, and nearly touch each other above the forehead; and their hollow is so large, that young foxes shelter themselves in those that have fallen off. These horns first bend backwards and downwards, then forwards, and then outwards and upwards. In the American Argali the horns are still larger, covering the sides of the head from the eyes to the occiput, and touching each other at the front; these take a spiral direction. The Musmon, or Corsican Argali, has horns little exceeding the length of the head, and with only one bending.

Of the African sheep, the horns of the Adimain breed form a segment of a circle round the ears; the Morocco turn spirally outwards; the Goitered breed turn inwards towards the forehead; the Congo are bent back upon the neck. The Iceland sheep have three or four or five horns variously bent; the Cretan forms a complete circle at the base, and three spirals above; the Wallachian diverge at almost right angles from the head, and are then twisted into a spiral form; and the Merino ram has a spiral curve turning forwards and laterally into an additional crook.

The horns of the sheep, different from those of the ox, are smaller and of a simpler form in the castrated animal; and in some breeds where the female is polled, the horns of the wethers are curiously diminutive, compared with those of the rams.

The Foramen Supra-orbitarium.—The foramen supra-orbitarium passes through the frontal sinus in both the polled and the horned variety; and, as in the ox, there is a comparatively greater surface for the vessels to supply, there are usually two foramina on each side, and the vessels, at their exit from the bone, are defended by a sulcus or trench; and especially as these animals, even more than the ox, make too free use of their heads in their combats.

The Orbitar Process.—In order to afford space for the attachment or origin of the

born, the orbitar portion of the frontal bones projects both forward and laterally, which gives the peculiar breadth of forehead and prominence of eye to the sheep. This process, occupying the superior and exterior portion of the orbitar ring, presents, forwards, a sharper edge than in the ox, while it has comparatively less depth and strength, except that which it acquires from the more perfect arched form of the process, and the roundness of the orbit.

The orbitar process abuts upon the superior bifurcation of the malar bone, as it does in the ox, and has no connexion with the temporal bone; and, deep in the temporal fossa, it is almost cut off from connexion with it by the curious lateral development of the parietal bones in these animals.

The Œstrus Ovis in the Frontal Sinuses of Sheep.—The frontal sinuses both of the horned and polled sheep are subject to an excessive annoyance, from which the ox is comparatively exempt. There is a fly of the Diptera order (flies with two wings, and behind them two globular bodies, supported on slender pedicles, called, and properly, poisers), the *Œstrus Ovis*, the gad-fly of the sheep. It assumes its perfect and winged form in June and July, and then it is an intolerable nuisance to the sheep, especially in woody countries, or in the neighbourhood of copses. If only one appears, the whole flock is in the greatest agitation. They gather together with their heads in the centre, and their muzzles buried in the sand if they can find any, and are in continual motion to guard their noses against the attacks of their puny enemy. The œstrus, impelled by powerful instinct, endeavours to deposit its eggs on the inner margin of the nose. By the warmth and the moisture they are almost immediately hatched, and the larvæ or little maggots crawl up the nose, and find their way to the residence that nature designed for them. As the eggs of the horse gad fly, being licked from the parts on which they are deposited, and hatched by the warmth and moisture of the tongue, are conveyed into the stomach with the saliva, or the food, and attach themselves to, and live on, the inner coat of the stomach, until they are ready for their transformation, so the eggs of the gad-fly of the sheep, being deposited on the edge of the nostril, are quickly burst, and the little worms crawl up the the nose. In the act of passing up the nose they appear to give dreadful annoyance, for the sheep gallops furiously hither and thither, and snorts violently, and seems almost mad. Having traced their circuitous course, through the aperture under the upper turbinated bone into the maxillary sinus, and thence into the frontal one, the larva fixes itself on the membrane of the sinus by means of two tentacula or hooks which grow from the sides of the mouth, and there it remains feeding on the mucus secreted by this membrane, from June or July to April or May. There are seldom more than three or four of these insects found in any sheep.

The larva having reached and fixed itself on the sinus, no longer annoys the animal: ten months pass, and it produces neither disease nor inconvenience. In this respect it resembles the bot in the stomach of the horse, which, except existing in great numbers, is perfectly harmless. Nature would not have assigned it this residence, if it did mischief there: the permanent comfort or health, or life of the sheep, would not have been sacrificed to so insignificant a being. The stories of nasal gleet, and vertigo, and phrenitis, and death, being occasioned by it, are all fabulous.

It passes the longer but secluded portion of its life harmless in its destined abode; and when it has attained its full growth, and is ready to undergo its next mysterious change, it detaches itself from the sinus, and creeps out through the circuitous course by which it first entered, and again it sadly annoys the sheep, who makes the most violent efforts to dislodge his enemy. The grub having dropped from the nose, burrows into the ground, and assumes the form of an oval and motionless chrysalis, from which in six weeks or two months bursts the perfect fly. It is found more particularly on the sides of copses, and is recognised by the shepherd on the walls and rails near the flock. The fly lives but a short time: it has but one duty to perform, the propagation of its species. The male having accomplished this duty, immediately dies; indeed it takes no food, for it has not the organs by which it can either receive or digest it. The female lingers a little longer until her eggs are ripe, but she too eats not, but, impelled by powerful and unerring instinct, she seeks and persecutes the nearest flock of sheep, and finds, in the manner we have described, a habitation for her offspring.

The Practice of the Spanish Shepherds.—Spanish shepherds are said to use the trephine for it. They attribute various affections of the head to the worm which they are almost sure to find in the frontal sinus; and they materially relieve or remove the complaint, not by the removal of the grub, but by the bleeding which is the necessary consequence of the operation.

LONDON HOSPITAL.

CLINICAL LECTURE

BY

DR. BILLING,

Jan. 14, 1832.

DISEASES OF THE HEART.

I WISH to-day, Gentlemen, to call your attention to the consideration of the symptoms and treatment of several cases of diseased heart which we have on the clinical journal and in the hospital, and shall not occupy any time now with the subject of pathological anatomy, as I have already had opportunities of showing you specimens of diseased structure, and of explaining how they produce the secondary states of disease, of dropsy in the cellular and serous membranes, congestion of the mucous, &c. I shall begin with the worst kind of cases, those in which, though you may keep the patient alive and render life very comfortable, you may not be able entirely to cure them, both on account of the amount of the disease, and the advanced period of life; for the same amount of disease is, of course, more under the control of our art at the earlier age. You will see also in these cases what some of the others are likely to terminate in—that is, those of them which, though of recent date, have irremediable change of structure, and what those which have not, may be saved from by judicious treatment.

CASE I.

Disease of the Heart, with Dropsy—Operation of Hydragogues.

P. M., ætat. 60, labourer. Dec. 6. Admitted in a state of universal dropsy, the abdomen ascitic, and the scrotum, legs, arms, hands, and face, anasarcous; difficulty of breathing and cough most troublesome on lying down; says that he expectorates thick phlegm; rhonchus sibilans and sonorus, and crepitation; pulse at the rate of about 60, but irregular, intermitting, and weak. On auscultation the heart's action weak, but occasionally a single evident impulsion, and extended pulsation into the right side; tongue clean; papillæ white (oxsanguine); little appetite; bowels free without medicine; urine scanty; skin soft and warm; sleeps ill. He was ordered

Aceti scillæ ʒi, *ex Aquæ* ʒiss *ter die*; *Elaterii* gr. i, *cum hydrarg. submur.* gr. iij, *alternis auroris. Milk diet.*

The first thing evident in this case was, that the man must soon sink, unless we could relieve him from the load of serous fluid which was infiltrated throughout every part, including the spongy texture of the lungs, and which was the cause of the crepitation; had the crepitation been from inflammation, and not from œdema pulmonum, we should have had frequent pulse, and other feverish symptoms belonging to peripneumony. In a very short time the increase of the dropsy in the lungs would have suffocated him, even if no dropsy existed in the cavities of the pleura or pericardium; and it is an interesting fact, which you will find confirmed by your future experience, that those cavities, the pleura and pericardium, the most essential to be free from dropsical effusion, do always remain so the latest in dropsy, unless some inflammatory state in themselves, gives a disposition to effusion, such as takes place in pleurisy, which is many times the cause of, and precursor of, that kind of hydrothorax which Laennec calls empyema. Though the œdema, or dropsy of the lungs, had been mentioned by one or two previous writers, it was only by Laennec that it was made generally known; the suffocation, orthopnea, and starting from sleep, which it produces, had usually been attributed to hydrothorax.

It is necessary to enter into an explanation of the medicines ordered in this case; we had two indications to fulfil; to get rid of the fluid already effused, and to check the deposition of more. Elaterium affords the quickest means of evacuating dropsical fluid next to paracentesis, and in this instance, as paracentesis could only have emptied the abdomen, elaterium was more applicable to the general anasarca. It carries off the water, by causing a profuse weeping from the capillary exhalants of the mucous membrane of the intestines, to the amount of many quarts per diem; and of course, whilst the exhalant capillaries of the sanguiferous system are throwing off serous fluid, the lymphatic absorbents go on pouring it into the veins, by which the dropsy is carried off, which is the modus operandi of drastic, or, as they are called, hydragogue cathartics and emetics. Elaterium is emetic as well as purgative, but it is specifically hydragogue above all others, and produces little griping uneasiness as long as there is fluid to come away, when that is evacuated it produces irritation; hence it is not a good purgative medicine to use, even where you want a strong one, except in dropsical cases, as it may prove more irritating than effective. It is well for you to learn the value of this remedy in an hospital, as you must feel confidence in it yourselves before you can urge your private patients to persevere with a remedy which is so disagreeable in its operation, and which requires to

be repeated many times. If patients will not take it more than two or three times, that most likely is not sufficient to cure the dropsy, and they are dissatisfied at having been disciplined without permanent benefit, for dropsy is not to be cured in a week; but after persevering for ten days or a fortnight, which is often necessary, they will feel the advantage sufficiently to go on without any persuasion.

At the same time that you are evacuating the fluid, you must endeavour to restore the tonic action of the capillary system, so as to check the effusion of more, and we know of no medicine more efficacious for this purpose than mercury, for which reason the calomel was prescribed in this case, as well as to assist in restoring the action of the secreting capillaries of the kidneys, for which purpose calomel is constantly combined with diuretics, as it was in this instance with squill, which is both diuretic and expectorant; and until you can restore the secretion of the kidneys, so as to keep up the natural evacuation of redundant serum, the dropsy will gain upon you again after each dose of elaterium, or after tapping, and especially if the skin be dry, so as not to relieve by insensible perspiration, which was not the case however here. You must make nice discrimination in your diuretics; digitalis, for instance, is often much more powerful than squill, but that is where there is some degree of hardness or force in the pulse, which would be better kept down, and not when there is such a staggering pulse as that of P. M. There are no cases in which sudden death occurs more frequently than these of dropsy with diseased heart, and if you misapply digitalis in them, you may become afraid to use a most efficacious remedy in other instances, when it not only could do no harm, but would be beneficial, merely from want of that discrimination which it is my endeavour to teach. Thus digitalis is useful in some cases of phthisis, in some cases of epilepsy, &c., on account of its sedative, controlling, power over the heart, and totally inapplicable in other cases of the same diseases, when the action of the heart is already weak. You see that you must consider the operation of your remedies on the nervous as well as the vascular system, that the depressing effect is by no means proportionate to the evacuating—of which you cannot have a better comparison than in these two—elaterium and digitalis.

Though this man's pulse was very weak, his skin was of a natural temperature, and there was no appearance of collapse to induce me to administer any stimulant, so that I trusted to relieving the load from the system, and giving him unstimulating, but nourishing food; his tongue was clean, and there was no evidence of defect in the primæ viæ, except want of appetite, and this it was to no purpose to attempt to restore, otherwise than by lightening him. He did not want opening medicine, and I should not have given him any, but that which I knew would bring away watery motions. His cough was one of congestion of the mucous membrane, ascertainable from the rhonchus, and the whole malady originated in enlargement of the heart, evinced by the impulsion and extended pulsation, the latter not perceptible at admission on account of his debility, except at the moments that impulsion also was evident. He slept ill, but I must caution you against narcotics in such a case; the only safe means of procuring rest, is by relieving that congestion of the lungs which causes the starting and uneasiness; if you give a patient in such a state, so much anodyne as to throw him into a state of insensibility, which can scarcely be called sleep, the consequence may be, that the insensibility may make him allow the phlegm to accumulate, so that he will be almost, if not altogether, suffocated when he awakes, making it scarcely safe for a person in that state to have more than short snatches of sleep. The next report is,

13. Feels better; dropsical swelling diminished; cough troublesome, with watery mucous expectoration; pulse and tongue as before. The elaterium produces copious watery motions, with vomiting, on the alternate days; urine more copious; sleeps ill. *Perstet.*

There was here some slight evidence of improvement in the diminution of anasarca; increase of secretion of the kidneys; and the wateriness of the expectoration showed that the lungs were getting off the fluid which loaded the air-cells.

16. Feels better; swellings diminishing; cough much better; still rhonchus and crepitation; pulse as before; urine increased; appetite good. *Full diet; contin. med.*

20. Swellings nearly gone; ditto cough; pulse and tongue as before; appetite good; urine copious; complains of the action of the elaterium.

Capt. tinct. ferri muriatis ℳxx; *ex infusi gent. co. ter die; omitt. cætera.*

He did not complain of the action of the elaterium until the necessity for it had ceased, which being the case, I ordered him only a tonic, which has also considerable diuretic properties, to keep up the secretion of the kidneys; and left off all active medicine. On this plan he continued improving. On 27th the pulse was reported more uniform in strength, though still irregular and intermitting.

Jan. 1. Feels better in every respect; no cough; appetite good; no thirst; a very little œdema of the legs; bowels free; urine free; tongue clean; pulse as at last report.

3. Legs rather more swelled; pulse more regular, and not so weak; impulsion and extended pulsation in the chest.

Capt. elaterii gr. i;
Calomel. gr. iij *alt. aur.*; *contin. mist.*

You may observe in this report that the consequence of the return of force in the heart's action, before the capillary system had recovered its tone, was, that an increase of the dropsical effusion took place, upon which I lost no time in resorting to the elaterium and calomel again; these he took on the alternate days until the present time. He has now only a slight fulness below the ankles, which would disappear were he able to take exercise. He has again begun to complain of the elaterium, as the exhalants of the intestines do not like to be troubled by its demands when they have nothing to give. I shall from this time let him have only the sulphate of quinine gr. v ter die, with rest and full diet, until he recovers his strength, so far as he is capable of doing with extensive disease of the heart.

CASE II.

Disease of the Heart, with Acute Inflammatory Affection.

I shall next take a similar case, which you have seen, in which there was less organic disease, but complicated with an acute inflammatory affection, requiring different modification of treatment.

S. L., ætat. 50, labourer, October 29. Has had dropsical swelling of abdomen and legs, cough, and shortness of breath, for 8 weeks, and had previously had palpitations. Pulse irregular, frequent, and rather hard; action of heart irregular and rapid, with impulsion; respiratory murmur dull, crepitation posteriorly and inferiorly in chest, and pain in left side; tongue slightly furred; appetite pretty good; urine scanty; bowels open. He has been bled and purged with relief.

Habt. tinct. digitalis ℳxv;
Magnesiæ sulph. ʒi; *ex mist. scillæ* ʒiss, *ter die;*
Pil. hydrargyri gr. iv;
Scillæ rad. gr. i, *omni nocte;*
Empl. cantharidis lateri sinistro thoracis.

In this patient we had dropsy connected with acute inflammation, and he had fortunately been relieved by antiphlogistic treatment to a certain extent. I must observe to you that the crepitation in the lungs here was equivocal; it might have depended upon œdema pulmonum entirely, as in the former case, but he had pain in the left side, for which the blister was applied, and the hardness of the pulse; and his having been feverish before he was bled, according to his account, evinced inflammation, the complaint of palpitations, and the impulsion of the heart, indicating organic disease, —hypertrophy. Here was a case of dropsy with diseased heart, in which I did think it not merely safe but expedient to administer digitalis, for the purpose of softening the pulse, of which it is one of the most powerful means we possess. The mercury and squill was given to fulfil the same indication as in the former case, and the salts to keep up the action of the bowels, by which means I thought the dropsy might be reduced, as well as the inflammation, without elaterium.

On November 1, his gums became sore, and his pulse softer, but he was not relieved of any of his symptoms. I therefore resorted to elaterium every other morning, left off the mercury, there being evidence of its sufficient action on the system, and continued the mixture, with digitalis, &c. to keep down the pulse. He continued on this plan for a month, gradually improving; the pulse became steadier but never perfectly regular. The dropsical swellings disappeared, and his cough declined, but did not entirely cease until the beginning of December; up to which time he had crepitation in the inferior part of the left side. This must have been the rhonchus crepitans redux, subsequent to peripneumony, for all œdematous crepitation, as well as his dropsical swelling, had ceased by the 15th November. I let him continue the elaterium notwithstanding, as the mixture, even with the magnesiæ sulph., had no effect on the bowels. On the 7th December he felt quite well, and was dismissed from the hospital. You may probably, however, ere long see either of these patients back again, as with the permanent organic disease of the heart which they have, they are likely to have return of these symptoms, unless they take more care of themselves than they are perhaps equal to in their station of life, as has been the case with the woman A. S., at present in Charlotte's ward, now for the third or fourth time. She has been twice in limine mortis, has been tapped several times, and though she has diseased liver, as well as enlarged heart, she rallies, so as to be able to return home and take care of a large family. The treatment has been similar to that in the last two cases, only that she has been sometimes so sunk, that we have kept her alive for days, merely with wine and brandy.

CASE III.

Hypertrophy of the Heart, with Severe Diarrhœa.

The next is a case of incipient disease, and in a younger person, and in which we have every prospect of effecting a permanent cure, and even the reduction in size of a heart, after some degree of enlargement had taken place.

T. M., ætat. 22, a sailor, November 21. Complains of cough with expectoration, and diarrhœa; of debility, and that he is getting thinner; has been ill five or six weeks, having caught cold from exposure to wet; he was attacked with shivering, cough, and diarrhœa. Pulse 110, full and strong; rhonchus sibilans in different parts of the chest; there is impulsion of the heart, with extended pulsation. He feels the pulsation sometimes disagreably; no pain in the chest; tongue clean.

Capt. tinct. digitalis, ℥xv; *ex emuls. ol. cum liq. antim. tart.* ʒss *ter die;*
Lohock, ext. hyosciami gr. x *omni nocte.*
Baln. calid. emplast. cantharid. inter scapulas. Milk diet.

At first sight I had a suspicion from the cough, expectoration, and wasting, that this man was phthisical; but the wasting was attributable to the diarrhœa, which was a catarrhal state of the mucous membrane of the bowels, coeval with the catarrh of the chest, both produced by cold and wet, and the cough was no doubt aggravated by the hypertrophy of the heart. Had the patient merely laboured under catarrh of the mucous membranes, with a moderate pulse, Dover's powder, or small doses of tincture of opium, with infusion of catechu, might have allayed it; but the frequency and hardness of the pulse, and the hypertrophy of the heart, called for sedative and antiphlogistic treatment,—hyosciamus as a sedative narcotic; digitalis, to give a tendency to the muscles of the heart to diminish by diminution of action; the emulsion and lohock (or linctus) to soothe the membranes; the warm-bath to promote the exhalation of the skin, and diminish the internal congestion and irritation *pro tempore*; the blister frequently has a better effect applied between the shoulders, when there is a diffused irritation in the chest; when there is defined local pain, it is better to apply it at that place. Under this treatment, on the 29th he had very little cough, diarrhœa had ceased, appetite improved; pulse 96, soft, *Contin. med. full diet.* On the 13th December he complained of sensation of debility, and the hyosciamus was omitted. On the 20th he had a sharp attack of rheumatism, generally with pain also in the region of the heart, for which he was cupped to ʒxij over the heart, and his medicine was changed to 1 gr. *calomel every night,* and ʒj *acetat. colchici ex aquæ* ʒj *ter die,* with *milk diet,* which removed the rheumatism. On the 27th there was some dyspnœa, with a hard pulse, 108, and confined bowels; he was cupped again over the heart and blistered, and had ʒj *magnesiæ sulph.* in each dose of the mixture, by which he was quite relieved, but his pulse was not reduced, and on the 3rd instant I ordered him *tinct. digitalis* ℥xv *ter die,* to be added to the mixture. His pulse now is about 80 and soft, but easily quickened by exertion, and though he feels well, there is still impulsion; and ascending the stairs produces dyspnœa. I hope, by keeping him quiet, and under the influence of digitalis, to conquer this affection, and one circumstance greatly in our favour is, that the digitalis does not disagree with either his head or stomach, nor produce mental depression, as it often does, so as to prevent the continued use of it.

CASE IV.

Enlargement of the Heart produced by Acute Rheumatism.

The next is an example of those too common cases of enlargement of the heart, produced by acute rheumatism attacking the organ, and producing carditis or pericarditis, from the irritation of which, continued over-action, and consequent enlargement, ensue. This man, J. W., æt. 20, a cabinet-maker, was admitted 6th December last, in a state of acute or rather subacute rheumatism, with pain and swelling of the joints; pain and beating in the chest; pulse 100, throbbing, impulsion, extended pulsation, and bruit de soufflet of the heart, having been labouring under these symptoms for two months in consequence of exposure to wet. It is unnecessary to enter into the daily minutiæ of the case, the treatment having been in many respects similar to the last; he has been bled from the arm and cupped over the heart; he has had the saline antimonial mixture with colchicum, and also been subjected to the influence of mercury and digitalis. You must have observed that his appearance is very different from that of J. M., who is thin and slightly formed; this patient is of a very plethoric habit, and gets better when reduced, but as soon as he begins to recover his colour, he has a renewal of rheumatic pain, either in the limbs or heart. These relapses have occurred twice since his admission; he has scarcely ever been free from the tendency to sweating peculiar to acute rheumatism. I have not yet given him any bark or quinine, which is so often quickly efficacious in these rheumatic cases, as recommended by Haygarth, but you had

an opportunity of seeing that another tonic, *carbonate of iron*, ʒj *ter die*, relieved his pains; he had more pains in the limbs whilst under the influence of mercury, and the heart was much better, partly owing, I consider, to the digitalis which he was taking at the same time. Under these circumstances I gave him on 6th inst. *ol. terebinth.* ʒj. *ex inf. lini ter die.*—another medicine efficacious in rheumatism, and he was yesterday much better, but from his tendency to plethora, and his still having occasionally pain in the heart, I was induced to order him to be cupped again over the heart. The turpentine has produced ardor urinæ, as frequently happens, but it is not of much consequence, as it generally subsides, or is checked by adding a small quantity of opium; as I do not wish to give this patient opium, however, if this irritation continue, I shall resort to colchicum again, with quinine, and keep him at rest, if possible; but it is difficult to confine him to his ward when he feels a little better. He has youth and a good constitution in his favour; but there is much greater enlargement of the heart than in the former case.

ON VACCINATION

AS A

PREVENTIVE AND MODIFIER OF SMALL-POX,

AND ON THE NATURE AND EXTENT OF ITS PROTECTING INFLUENCE.

With Observations on the Varieties, Forms, and Degrees of Severity, assumed by modified Small-Pox.

By Robert Venables, M.B.

Whether cow-pox be a preventive of small-pox is a question which has agitated and still continues to agitate, the medical world; and it is one also upon which there is great confliction of professional opinions. One party maintain that cow-pox is no preservative at all, and that the practice of vaccination, so far from being a blessing, has proved a curse to mankind, by limiting or wholly suppressing those conservative measures which preclude the introduction of the casual disease. Another party as firmly assert, that cow-pox is a complete antidote to small-pox; the latter disease never appearing in the constitution which has been once fortified by the protecting influence of the former. This party assert, that all the instances recorded of small-pox attacking persons previously vaccinated, are but instances of small-pox succeeding a spurious form of cow-pox, the genuine disease never having been established. Perhaps between the extremes we shall find the truth. "Medio tutissimus ibis" is a rule which might serve to guide others as well as the unfortunate Phaëton. Accordingly, I believe it is now admitted, even in the highest quarters, that small-pox does appear after the vaccine disease, even in its most true, genuine, and characteristic form; but then the former, so mild and so modified as scarcely to deserve the name of a severe, much less a formidable disease. This appears to be the state of medical opinion upon one of the most important questions, that, practically considered, can engage the attention of the profession.

Some years since, I detailed the particulars of a case of modified small-pox after vaccination. The case is related in one of the numbers of the Medical and Physical Journal of 1822 or 1823. One or two professional friends, who did me the favour to examine this case, would regard it in no other light than as a rather severe case of varicella or chicken-pox; nor would they give up the point till the appearance of the casual disease in the confluent form in unprotected constitutions, legitimately traceable to communication with the case in dispute, convinced them of their error. Two conclusions appeared to me fairly deducible from the foregoing facts. 1st. Vaccination, when successful, is a modifier of small-pox. 2ndly. The modified disease will produce the natural one in susceptible habits exposed to its influence, and this also in its most severe or even malignant form.

I have upon all occasions availed myself of every opportunity which has presented of investigating the nature of small-pox; its modes of propagation, and the varieties and degrees of conservative influence afforded by vaccination; the laws by which they are regulated, and the rules for their estimation. The opportunities which presented in the garrison at Woolwich were invaluable, whether regarded as to their extent or the means of observation and facility of inquiry. Previously, however, to entering upon the general result, I shall detail the particulars of a few cases as they occurred in my own family, and consequently subject to my constant inspection and more immediate superintendence.

In the autumn of 1817, I vaccinated my oldest girl, then about two or three months old, with lymph procured at the Small-pox Hospital. The disease went through a regular course, and was satisfactory in every point. Four others were subsequently vaccinated by myself, at intervals after birth, varying from six weeks to two or three months. I felt perfectly satisfied with the general ap-

pearance and progress of the vaccine vesicles, and likewise the constitutional irritation excited by the disease, in every instance, with the exception of the last of the five. In this case the progress of the vesicle presented some slight irregularities, hardly perceptible unless to very inquisitive observation, and there was no constitutional irritation excited. These two facts induced me to look upon the constitution, in this instance, as unprotected, and still susceptible of the variolous influence. I, therefore, made several subsequent attempts to excite a more genuine form of the vaccine disease; but all my attempts were futile—they regularly failed. Some professional friends, when informed of the above particulars, and of my solicitude, were inclined to look upon my apprehensions as unfounded, and my fears as idle; the more especially as the several attempts to reinduce any form of the disease proved unsuccessful. They, therefore, looked upon the constitution as fortified and wholly unsusceptible of either the vaccine or variolous action. Sometime after, however, I had proof of the correctness of my own views in the appearance of small-pox most characteristically and unequivocally marked in this patient. In the spring of 1829, the small-pox prevailed both extensively and fatally at Chelmsford. The child, whose case is now the subject of consideration, slept in a small cot in my own bed-room; and I was one night, at this period, suddenly awoke by his screaming out most violently in his sleep. I immediately rose, took him out of bed, but could not succeed in restoring him to his natural recollection. The eyes indeed opened, but with a most vacant and terror-stricken stare. The screaming and fright continued for upwards of a quarter of an hour, when at length he became calm and tranquil; and on being put to bed again, went to sleep. In the morning, however, he awoke very feverish, with redness and watering of the eyes, sneezing, running of the nose, cough, suffusion of the skin, and all the symptoms of impending exanthema. The suffusion of countenance very speedily assumed that erysipelatous character, with, to close observation, a slightly elevated or pimply appearance, which I have found to be an unequivocal diagnostic of the nature of the rash, and an unfailing variolous premonitory. The small-pox eruption speedily followed; pustules formed, filled, and maturated, and the disease went through its regular course with the exception of the secondary fever, which did not supervene the period of declination. Some few pits under the seat of some of the severer pustules unequivocally attest, even at the present moment, the nature of the disease.

At the time that the small-pox attacked this child, there was an infant brother in the house, who had not then been vaccinated. However, I was lucky enough to procure some lymph, and insert it with success in the arm of the infant, the true vaccine disease supervening. The four elder children which had been previously vaccinated, were allowed a free and unrestricted intercourse with the child then labouring under small-pox, but not one of them suffered in the slightest degree, not even the infant (the intercourse with it, however, was completely interdicted), nor was the progress of the vaccine disease in the slightest degree interrupted. Here, then, appears to have been a total unsusceptibility, completely proof against the influence of the variolous contagion, engendered by vaccination; for although freely exposed, every one of those *effectually* vaccinated, hitherto resisted the variolous influence.

However, about three weeks since, the eldest but one of the vaccinated children was taken ill with cough, followed by febrile heat, watery suffused eyes, and general ill health. This state lasted for three or four days, when the erysipelatous rash already noted as characteristic of variola appeared. The whole face became slightly but evidently tumefied. Very small pimples, with a kind of vesicular summit, made their appearance. This state continued for between three and four days, that is, from the first appearance of the rash, till the commencement of its decline. I was in daily expectation in this first case of seeing the vesicles enlarge, fill, and maturate like variolous pustules. The cough all this time continued severe. However, about the fourth day of the rash, the seventh or eighth of the disease, the vesicular pimples disappeared, the countenance remaining somewhat swelled, the appearance of the eruption being exactly similar to that after the throwing off of the scabs on the decline of small-pox. In about eleven or twelve days the complaint had completely vanished, leaving no trace whatever of the nature of the disease, nor indeed any manifestation whatever of previous disorder, with the exception of a little weakness, from which this patient has since completely recovered.

It may, perhaps, be doubted, that the above was a true case of small-pox. I must confess, that had I not witnessed two or three analogous cases before, I should have been inclined to question the correctness of such an opinion. I have very little doubt, however, that, judging from the first appearance of the rash or efflorescence,—for it matters little by what name it is called,—and its subsequent or daily progress, many and even accurate observers would have

regarded it as a case of *repelled* small-pox, and most probably would have adopted the measures usually had recourse to in such a contingency. But that no doubt may exist upon the question, I must state, that every one of the other four vaccinated children, including the child which I vaccinated during the appearance of the small-pox in my house at Chelmsford, was seized in succession with an eruptive febricular disease of precisely the same appearance and identical nosological character. The only one which escaped was the little boy who had the small-pox after imperfect vaccination at Chelmsford. He was fortified against small-pox, by having previously had the disease, and consequently was unsusceptible. Now had this been a modification of any other of the exanthemata, he must have suffered equally with the rest, for he has not had measles, scarlet fever, or any of the diseases of the above order. Had it been any peculiarity of febrile efflorescence arising from atmospherical influence, or any other cause, as locality, &c., the variolous patient could not have escaped, for he must have been equally susceptible, and he was equally exposed, for there was no restriction even of intercourse, on the contrary, he slept with his brothers from the commencement all through the progress to the termination of the disease; yet he and an infant (with the latter of whom however, all suspicious communication was immediately suspended) alone escaped. This fact goes far to establish the variolous identity, and, taken with the general circumstances above stated, leave, to my apprehension at least, but very little doubt upon the subject.

Allowing the correctness of the above statements, it may be inquired, Do the facts themselves lead to any conclusions of real practical utility? I think this question may be very readily answered in the affirmative. In the first place we learn that vaccination, if successful, is probably a complete antidote—even a permanent antidote to small-pox. 2dly. We learn that vaccination is not only a modifier of the progress and phenomena, but even a very powerful mitigator of the severity of small-pox; and these modifying and mitigating powers seem to be possessed in various degrees even by the spurious forms of cow-pox, the power increasing as it approaches in character to the genuine disease. These conclusions I think legitimately deducible from the history of the foregoing cases, independent of many other corroborating facts which I could adduce, if time and space would permit.

As the genuine vaccine disease seems wholly to disarm small-pox, not only of its virulence, but very nearly of its nosological or distinctive characters, it may be an object of some moment to determine what are the circumstances which tend to impede the success of vaccination, and give rise to a spurious, rather than the genuine form. Cow-pox is, if I may be allowed the expression, one of the most delicate morbid actions of which the animal economy is susceptible. Therefore it is the most easily suppressed, suspended, or perverted. Any one of these may be sufficient to modify or destroy the protecting influence. How, then, are we to obviate such inconveniences? The most effectual method is vaccination in a state of positive health, that is free from disorder of any kind, constitutional or local, but of increased susceptibility. The first few days of infancy, generally speaking, present such a state. The economy, then, is seldom deranged by artificial agencies; and if any derangement then exist, it must depend upon natural causes, over which probably we cannot exercise any control. However, as the fears of parents, the conflicting opinions of practitioners, and numerous other circumstances, all concur in preventing the institution of vaccination at this period, it may be well to state what are the circumstances which dissuade from the practice. These are, so far as my observation extends, all general or constitutional disorders, more especially if attended with any degree of febrile excitement. On this account the severity of teething, and all gastric and enteric derangements, which latter, in infancy especially, are attended with considerable constitutional irritation, are unfavourable to vaccination, as they frequently wholly prevent, and at all events tend greatly to pervert, the regular progress of the disorder. Hence, in such circumstances, vaccination should be deferred, instituting more rigid precautions against the casual introduction of small-pox. It is, I have good reason for believing, an unfounded notion, that "vaccination may be attempted under unpromising circumstances; as in the event of success it is well, but in case of failure, the practice may be repeated with equal or better chances of success." The truth of the latter part is in my mind very questionable. A spurious form of the disease may be engendered, which, though by no means a perfect safeguard against small-pox, yet generally renders the system proof against all future attempts at perfect vaccination. I have repeatedly had occasion to observe the formation of spurious vesicles, and the failure, in such circumstances, of all future attempts at vaccination, till at length the patient suffered an attack of small-pox. All eruptive disorders, and eruptions, rashes, &c., of the skin, whether chronic or acute, are unfavourable to vacci-

nation, and therefore the operation in such cases should be deferred, with the necessary precautions, till such impediments have been removed.

It has been, and indeed often is asserted, that there are no preparative measures necessary previous to vaccination. It is a very common, but I believe very unfounded opinion, that vaccination may be effectually practised at lengthened intervals—seven years in the same individual. I believe, like small-pox, the rule is that true cow-pox is excitable but once in the course of life. The other is an unfounded, or at least a very questionable dogma. Preparation is, in many instances, essential to the success of vaccination, and perhaps would be but a prudent precaution in the majority; for, by increasing the susceptibility of the constitution, it will increase the probability of success, and so far diminish the chances of engendering a spurious form of the disease. I need not here enlarge upon the preparative means; they consist in the removal of all sorts and sources of irritations, in the reduction of those states of the system which are known to prevent, and the institution of those means which favour the absorption of external agents into the blood.

Another assertion, and it is one upon which much is urged in favour of vaccination, is, that it is not attended with any constitutional derangement; and should any such effect follow, it is to be looked upon as an anomaly, or, at all events, but an exception to the general rule. Not only are the facts themselves false, but the deductions unfounded. In the great majority of cases there is a slight, but, to careful observation, still sensible degree of constitutional excitement. In 217 cases which I vaccinated at Woolwich in 1811-12, and of which I took notes, there was marked constitutional disturbance in 105,* slight but still sensible in 84, equivocal in 15, and no constitutional manifestation whatever in the remaining 13. The general result of my observation is, that constitutional symptoms, however slight the degree, are essential to the protecting influence; and I should prefer an irregular vesicle with the true constitutional vaccine disturbance, to a regular vesicle without any.

From the above facts, confirmed by extensive observation, I feel that I am warranted in the following conclusion:—Vaccination, to prove successful, should be practised at as early a period of life as possible. At this period the constitutional susceptibilities are, as it were, at a maximum; and there is less of that deviation from pure health which certainly tends to pervert or disturb the progress of so delicate a disease as cow-pox.

It may now possibly be asked, why the five persons whose cases I have just detailed, resisted the contagion of small-pox about three years ago when domiciled among them as it were, yet yielded themselves its victims so readily on the present occasion. Of this I admit I can offer no satisfactory explanation. But still I must assert there is no greater difficulty in admitting the fact, than that the individual who, though freely exposed, resisted for years the contagion of typhus, measles, and even the plague, yet fell a victim at a period, and under circumstances which precluded all anticipation of such an event, but would have led us rather to infer a complete immunity. Therefore, till we can solve this latter difficulty, we cannot fairly attach much importance to the former.

Now, in conclusion, I shall make one or two observations upon the variolous modifications. Of these, the disease certainly seems susceptible to a great extent, both in degree and variety. The principal modification seems to be that from genuine cow-pox, in which the eruptive fever is but slight—the eruption consisting in hardly anything more than the cutaneous efflorescence, surmounted by very small vesicular-looking summits, which die away in between three or four days without maturating or assuming the pustular character. In this modification there is neither "pitting" nor "scabbing," but often an efflorescence, or traces of its remains on the face, for eight or ten days, or even a fortnight. There is no desquamation of the cuticle, and all febrile excitement ceases on the fifth or sixth day. A patient in this disease will communicate the complaint to susceptible persons in the usual forms.

The next modification is that which arises from the less spurious forms of cow-pox. It varies principally in the degree of severity. In it the disease goes through the regular course, from the eruptive fever to the maturation of the pustules; on the decline, however, there is no further danger. Sometimes the pustules, though of the regular size, retain a lymphy or milky appearance, never assuming the true purulent appearance. Sometimes they resemble the crystalline variety, but, generally speaking, they are all devoid of danger. I have never observed secondary fever, but there is usually pitting of greater or less intensity.

There is one other remark with which I shall conclude this paper. Individuals not protected by previous vaccination or small-pox, are occasionally attacked after being exposed with an efflorescence of the skin like that which attends the appearance of

* The younger the patient, generally speaking, the more marked the symptoms.

small-pox, a degree even of pustular appearance succeeding, partaking entirely of the characters of variola, but without any constitutional symptoms whatever. Such persons are apt to believe themselves secure against any future attacks of the disease. This however is but a false security. I have seen seven very clearly-marked and well-established instances of failure under such circumstances. In truth we may say of the "variola sine febre," as of the "rubeola sine catarrho," it affords no security; and as, in the latter case, the individual is still liable to measles, so in the former he generally suffers at some subsequent period from small-pox.

7, Suffolk Place, Hackney Road,
June 5, 1832.

LITHOTRIPSY.

To the Editor of THE LANCET.

SIR,—I beg to inclose an interesting case of stone in the bladder, transmitted for publication by Sir RICHARD DOBSON, M.D., Surgeon of Greenwich Hospital. The case was treated by Baron HEURTELOUP, and affords another example of the efficiency of the new instrument, the "percuteur courbe à marteau." The judicious medical treatment adopted by Sir RICHARD is also an attractive feature in the case. I am, Sir, your obedient servant,

D. O. EDWARDS.

Westminster Hospital, June 11, 1832.

CASE.

(*Drawn up by Sir* R. DOBSON.)

Greenwich Hospital, June 5th, 1832.

At the examination of invalids at the Admiralty on the 19th of April, Charles Sellors, a private marine, aged 23 years, presented himself, having been invalided for stone in the bladder, at Haslar Hospital, where he had refused to submit to the operation of lithotomy proposed to be performed upon him by Dr. Mortimer, the able surgeon of that institution. Finding that though his dread of being cut was insurmountable, he had no objection to lithotrity, (for he had heard that there was a method by which the stone could be got out of the bladder without cutting,) I proposed to Sir J. Pechell, Bart., (one of the Lords of the Admiralty superintending the examination,) that the patient should be sent to Greenwich Hospital, for the purpose of being operated upon by Baron Heurteloup, who had so successfully broken up a stone in the bladder of one of our pensioners in the year 1830, which person has continued ever since quite free from disease. This proposition being readily acceded to, I wrote to the Baron, whose other engagements did not permit him to fix an earlier time than the 5th of May for the operation of lithotripsy; on which day an aperient lavement was administered to the patient at noon, and at half-past two o'clock the Baron operated, using the instrument called *Percuteur courbe à marteau*, a description of which was given in the 456th Number of THE LANCET.

In the operation of lithotripsy the patient is placed on the *lit rectangle*, the same as used for lithotrity; and the bladder having been first injected full of warm water, the Baron introduced the instrument, with which he seized the stone in an instant, and with a few smart strokes of the hammer broke it in pieces; some of which fragments he subsequently seized, and in like manner smashed them. The whole of this was done in three or four minutes, without any apparent pain to the patient, who was cheerful the whole of the time, and who said that the only uneasiness he felt was a great desire to make water, which he did the moment the instrument was withdrawn, and a considerable quantity of detritus came away with the urine.

6th. Portions of detritus have been passing during the night, to get rid of which he had very frequent desire to make water, and on that account got little sleep. The water is slightly tinged with blood. Fearing lest some particles might be irritating the neck of the bladder, a sound was introduced, which gave him no pain. A large piece of calculus was felt near the prostate, and as soon as the sound was withdrawn several fragments were discharged with the urine.

7th. Has slept well; some soreness in the urethra; sound again passed; a fragment large and rough found close to the neck of the bladder; gave him an aperient, which operated well; in the evening was hot and feverish, with some headach and thirst. *Haust. anod.*

8th. Has passed several pieces of detritus in the night, the urine is high-coloured, and deposits a mucous sediment. This being the day agreed upon with the Baron for operating again, the patient had a glyster at noon; but when the Baron came down at three o'clock, we were of opinion that it would be better to defer the operation, as the patient was complaining of nausea, and being still feverish, he was ordered a hip-bath, and bled to 16 ounces.

9th. He perspired freely after the hip-bath, but being still feverish, and having had some vomiting, he was ordered effervescing saline draughts, with an anodyne at night.

10th. Has slept very well; bowels have been well opened, but he is still slightly sick at stomach; he has no pain at all in the bladder or urethra, the sound dropping easily into the bladder without causing any. The large fragment was felt near the fundus of the bladder. Continue the saline and anodyne draughts. He passed a large fragment to-day.

11. Had a very good night, but still suffers from sickness of the stomach; was formerly in hospital for gastritis, and fearing inflammation of that viscus, which is certainly more affected than the bladder, he was bled from the arm to twelve ounces, and thirty leeches were applied to the gastric region.

12. In every respect better; no soreness about the pubis or perineum, nor does he suffer the least pain by the introduction of the sound; bowels well open.

13. Has had several hours sound sleep, and is quite free from pain, but has vomited a little; the urine is quite clear, and the patient feels hungry.

14. Continues to improve.

15. He complains of headach with noise in his ears; and (as he expresses himself) "a sound all over him," for which a dozen of leeches were applied behind his ears; bowels quite open.

16. Noise gone; much better.

17. Feels very well.

18. He had a glyster at noon; and at three o'clock the Baron operated again as before, seizing the stone without the least loss of time. After breaking it, he lowered the patient's shoulders, in order the more readily to seize any of the smaller fragments still requiring further reduction. After this was done, which did not last longer than the former operation, some more warm water was injected into the bladder, which brought away sufficient proof of the calculus having been further comminuted. The patient had not the least suffering after this operation, which was repeated again on the 24th, with the same facility; and by this third application of the instrument, the stone was so completely crushed that every grain of it has come away, and the man is perfectly cured.

Each of these operations was performed in the presence of thirty or forty medical gentlemen, every one of whom expressed his surprise and delight at the Baron's dexterity; and at the little (if any) pain which the patient suffered.

The slight fever which followed the first operation was ascribable more to the stomach than to the urinary organs, and might probably have been obviated if the patient, who is of a plethoric habit, had been depleted before. This supposition is strengthened by the consideration that no febrile symptom or inconvenience whatever, followed either of the other operations, which took place after the patient had been well depleted and reduced; and this may serve as a hint on future occasions. It must be admitted, however, that when a stone undergoes Macadamization in the bladder, it is impossible for the operator to tell into how many fragments it may break, or what may be the shape and size of each. These from their roughness or sharpness will necessarily produce some inconvenience to the bladder, and in this man's case no doubt caused the frequent desire of making water, which he experienced after the first operation. However, nobody can doubt the great advantage which lithotripsy has over any other mode of operation. The result of the case is the best recommendation of the practice, and the more it is known, the better for the public, as I feel satisfied that it will ultimately render lithotomy an operation of rare occurrence; and if early recurred to by patients afflicted with the stone, will afford them a safe and easy escape from their great and increasing distress.

R. Dobson, M.D.
Surgeon of Greenwich Hospital.

CASE OF

OSTEO SARCOMA OF THE UPPER MAXILLA,

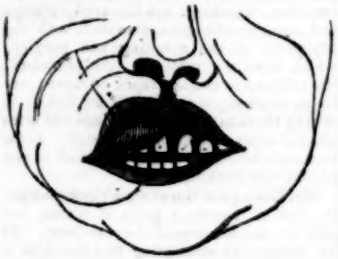
WITH THE OPERATION FOR THE REMOVAL OF THE PART AFFECTED.

By E. L. Bryan, Esq., *Surgeon, Stowmarket, Suffolk.*

The subject of the disease, Philip Clarke, ætat. 8, was brought to me on the 4th of May last. His parents described the disease as making its appearance about seven or eight months before, in the form of a blister, on the inside of the gum, in the neighbourhood of a decayed tooth. The tumour did not increase much in this direction, but soon appeared on the outer side, and has continued steadily to enlarge, for the last four or five months, under the application of lotions, &c.,—lately, as the mother informs me, an escharotic having been tried. When I first saw the boy, it was of considerable size, covering the alveolar process from the first incisor to the last molar tooth, overlapping the teeth of the inferior jaw, distending the cheek, and opening the lips, between which it projected. Superiorly, it extended towards the nasal process and orbit, to about the level of the infra orbitar foramen, consisting, at this part, of thickened and partially ossified pe-

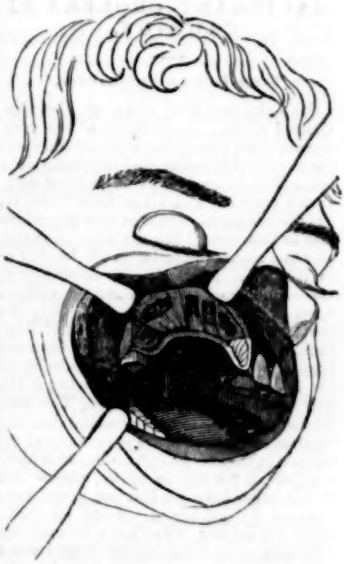
riosteum, distended with (as was afterwards found) a mottled curdy substance of the consistence of brain. In some parts it communicated to the touch the sensation of fluctuation, in others that of carcinoma, and from the surface of the latter an offensive sanies exuded. Considerable bleeding had occasionally taken place. Three teeth of the side affected had fallen out; the others were loose, except the last molar. The child had occasionally experienced in the tumour considerable pain, which he called toothach: his health had begun to suffer materially, but the glands in the neighbourhood were not affected, nor had the complexion that unhealthy aspect which usually accompanies malignant fungus. The parents were anxious that I should operate, or relieve them from their painful uncertainty, by saying nothing could be done for the child. Under these circumstances, and my opinion that there was a tolerable chance of success, being strengthened by that of several professional friends, I determined on the operation, and performed it on the 10th in their presence.

The following is a sketch of the tumour



Operation.—I commenced by making an incision through the gum between the two molares, and along the palate to the mystacial suture, in a slight curve outwards: considerable hemorrhage ensued from the divided branches of the palatine artery, which however was immediately stopped by pressure with the finger. I then passed a bistoury through the cheek from within outwards, dividing the lip rather nearer the angle than the middle of the mouth, in a direction upwards and outwards, just avoiding the orifice of the parotid duct. Having secured the arteries of the lip, I dissected the cheek from the tumour, and made an incision around it, externally commencing and ending opposite to that on the inner side. I then sawed through the alveolar process, commencing in front close to the mesial line, and following the external and internal lines of incision round the tumour. I had hoped to have avoided the enamelled parts of the secondary teeth, and even some of the fangs, by keeping close to the junction of the internal lamellæ of the palatine and nasal processes of the maxilla, but having sawn through the fang of the new second incisor, the enamel of the next tooth was met with. The saw was then changed for a pair of cutting forceps, which embraced the tumour, and in two incisions separated it, one through the alveolar process, between the two molares, as was first intended, the other opposite the canine tooth; the intervening space was easily cut through with a scalpel. There remained a diseased and rough surface, with the teeth projecting: these were extracted, and the bone sawn through in the direction first intended, in a curve from the first incisor to the last molar tooth, opening the antrum at its anterior inferior part. Contrary to expectation, it was found to be healthy internally; its lining membrane remained entire. The whole of the diseased parts were now removed, the remaining bone presenting a smooth, and, to all appearance, healthy surface. No hemorrhage followed the cessation of pressure which had been kept up during the operation upon the palatine, buccal, and infra orbitar arteries.

The sketch beneath will give some idea of the curved line in which I divided the bone.



1. The antrum.
2. Parts of the sockets of the second set of teeth.

On examining the tumour, the disease appeared to have commenced in the periosteum of the cell containing the second half-formed bicuspid tooth. From it slight ligamentous bands extended into the tumour. It is now nearly a month since the operation; the external wound, to which three sutures were applied, united by the first intention: no exfoliation of bone has taken place from the internal wound, which is nearly healed, and presents no appearance of fungoid growth. The constitutional excitement, and the pain following the operation, were slight, and the boy's health and appearance are much improved.

I was enabled to divide the bone in the curved line shown in the sketch, by using a fine, tapering saw, broader at the teeth than at the back; of that kind called by carpenters the keyhole saw. I am not aware that it has before been introduced into surgery, and think it will occasionally be found very useful: the adult jaw might with facility be sawn through in the direction in which I met with so much opposition from the second set of teeth.

CASE OF

MALIGNANT CHOLERA AT CAWSTON.

To the Editor of THE LANCET.

SIR,—In the little town of Cawston, situated within eleven miles of the poor, crowded, and closely-built city of Norwich, the cholera has made its appearance in a formidable shape, while in the last-mentioned place not a case has been heard of, and the disease has not been seen any-where else in this part of the country. Cawston presents nothing peculiar in its locality or in the habits of its people, amounting to eleven hundred. It is a retired village, apart from any high road. Mr. Grey reports 37 cases of cholera and 104 of diarrhœa with sickness, as having occurred among this number of inhabitants between the 1st and 10th of June. I saw two of the first description before leaving Cawston, which was likely to become such. As some interest may attach to the appearance of the disease in this isolated situation, after passing over, if we may so speak, places that might rather have invited and better have fostered it; and lest any doubt may exist upon the subject, I beg leave to offer the following case, being one to which I was a witness, which I am authorised by Mr. Grey, the resident surgeon, to draw up as follows:—

CASE.

Dewing, a weaver, aged 36, earning two shillings per week, upon which he and his wife subsisted, was attacked at six o'clock on Saturday, June 9, with cramps, vomiting, and purging. He is now, at seven, covered with a copious perspiration, which turns litmus paper red; surface moderately warm on the central parts; extremities, tips of the ears, nose, and lips, cold and livid; skin on the fingers and toes shrivelled; tongue moderately warm, white, and flabby-looking; countenance and manner anxious and appealing; pulse 90, small and feeble; abdomen drawn in; some tenderness upon pressure. In the morning he passed eight watery dejections resembling whey, with flocculi suspended in them. Since six o'clock, the time when he was seized with cramps, he has had no evacuation from the rectum, but the bladder has been once or twice emptied. Seen at ten o'clock after a bleeding of 10 ounces. Coldness and debility extending from extremities upwards; the abdomen only is now warm; no pulsation at wrist; the heart is heard to act sharply but feebly, without any impulse; breathing, not laboured; cramps and other symptoms aggravated, with the exception of the vomiting and purging, which have not returned. At 12 o'clock, the collapse is making rapid advance; extreme distress; constant call for drink; is rolling about in the bed; the legs and arms affected with succession of cramps. From this state he rapidly sunk, and died at one o'clock this morning.

Mr. Grey gave him at six o'clock an emetic, and afterwards a grain of opium, and five of camphor repeated every hour. At 12 o'clock, in attempting to give him a suppository of camphor and opium, upon opening the sphincter he had a copious dejection of the character described.

Inspectio cadaveris ten hours after death.

Eyes sunken; features drawn in; face blue; and whole body covered with livid patches. On opening the chest, the lungs were firmly adherent to the pleura costalis; on dividing the adhesions the lungs collapsed remarkably, the left not feeling thicker than the finger; the lower and back part of the right slightly congested. With the exception of this spot, both crepitated freely throughout. The heart, of its usual size, was pale and flabby at its apex and forepart; the back or under surface was dark-coloured, its small vessels filled with black blood; the coronary veins distended. The left ventricle contained no blood; its walls dark-coloured, soft, and of the usual thickness. The right ventricle filled with dark pitchy blood; the auriculo-ventricular orifice dilated; the right auricle distended.

Upon opening the abdomen the omentum presented a singular appearance, the veins being distended with black blood, felt as firm as nerves; no appearance of fat; nothing remaining but the serous layers and the vesse's; stomach and intestines filled throughout with fluid resembling rice-water with curd-like flocculi. The stomach was studded internally with bright red patches, not elevated above the surface; the same appearance in the upper part of the duodenum; the rest of the canal without any internal lesion, was dark on its external surface. The liver dark from congestion of its veins, with black pitchy blood; the gall-bladder full of greenish black fluid; the kidneys rather smaller, softer, and darker coloured; the bladder not larger than a very small apple.

Another case remained under treatment when I left Cawston. The patient had repeated dejections and discharges from the stomach of the rice-water appearance. The latter seemed to be relieved by the saline doses of Dr. Stevens. Of the result, Mr. Grey has kindly promised to inform me; and, if agreeable, I shall communicate it to THE LANCET. I have the honour to be, Sir,

Your obedient servant,

WILLIAM TRAVERS COX, M.D.

Great Yarmouth, June 11th.

THE LANCET.

London, Saturday, June 16, 1832.

SEVERAL subjects of deep importance press upon us for consideration at this juncture; but there is one which claims attention incomparably beyond all others, namely, the conduct to be pursued by the medical practitioners of England, Ireland, and Scotland, at the coming election—that election which is to return, for the first time in the *modern* period of our history, delegates who will speak the sentiments and echo the opinions of the public. We broach this question of duty at this early moment of our new-born freedom, in order that it may not be said we have neglected our charge as Journalists, or that we have given others an opportunity of alleging that they had taken part against public interests—against the cause of MEDICAL REFORM,—in the absence of a foreknowledge of the disastrous consequences. In pursuance, then, of the tenor of many articles written by us on various occasions during the last six or seven years, let us remind surgeons, physicians, and apothecaries, that they, the members of the medical profession—that they, the friends and companions of the aristocratic and middle classes, the comforters and protectors of the poorer members of society,— can exercise a greater influence over the public mind in this country, than could the members of any other profession, or of any other class, however exalted in rank, however useful in character. If, then, the members of our profession have hitherto slept on the post of duty, when they should have presented a bold and dauntless front against the plunderers of their rights, let them now shake off the lethargic stupor of inactivity—let them now cast off the disgraceful ban of slavish and submissive quietude, step forth at once into the ranks of a people struggling for national improvement, proclaim aloud the number and extent of *their* wants in the great work of regeneration, and strive unremittingly, zealously, and fearlessly, in one grand effort to achieve a full measure of justice. There must be no heart-burnings, no misgivings, no sacrifice of time in entering upon too minute an analysis of the causes of past disasters.

The abuses under which we groan in all the departments of our profession have but *one* source, and that is, *misgovernment*. Hence to this one point, and to this one point only, should the whole of our remedial exertions be directed. Whether we look to the infamous state of the laws relating to the medical profession,—whether we reflect on the *traffic* which is made of the sufferings of the poor at our "charitable" institutions,—whether we devote our attention to the indignities heaped upon the licentiates of the College of Physicians,—whether we contemplate the persecutions

inflicted upon the members of the College of Surgeons,—whether we remember with shame that the trading Company of Apothecaries was, by the Act of 1815, placed as an iron rod over the heads of the members of the general branch of the profession,—whether we reflect upon one or upon the whole of these enormities, if we look back to the *source* of the calamity, difficulty there is none, in tracing it to corrupt and incompetent legislation. If Parliament had been constructed in 1815, as, we trust in God, it must now be constructed under the Reform Act, would the petition of Rhubarb Hall have obtained the favourable consideration of the Legislature? The Apothecaries' Bill was false in preamble, fallacious in principle, and injurious in detail. To the discerning eye it promised nothing but mischief, and nothing but mischief has it wrought. It held out to the members of the College of Surgeons the certain prospect of accomplishing the destruction of their rights, and the fatal indication has been fulfilled to the letter. To the public it offered the unqualified contingency of a monopoly in favour of Rhubarb Hall, and to students it predicated the cheerless triumph of a body of unlearned dealers in roots and syrups, over the noble and energetic minds of some thousands of the finest of our British youth. Still, a bill, deformed by such disgusting features, was allowed to pass into a law almost without a murmur. But the complaints consequent on the evils which have resulted from its active operation, have been deep, loud, and unceasing. That such a measure *ought* to be erased from the statute-book there can remain no doubt. Whether it *shall* be so expunged is a question to be determined by the members of the medical profession.

When the great attempt—in which Mr. Lawrence nominally assisted—was made, in 1826, to reform the College of Surgeons, Sir Robert Peel and his party proclaimed their opposition to the call of the friends of improvement, and thus the petition fell still-born to the ground. Five thousand members of that College, acting by their deputies, could not succeed even in getting a committee appointed to inquire into the manifold abuses of which they complained. But power was then in the hands of the Legislature. That power is now in the hands of the people, of whom the members of the College form so great and justly influential a portion. It should be understood that an *effectual* reform in the medical profession cannot be accomplished without the aid of a legislative enactment; and nothing would be so simple, at the same time so consistently gradual, and ultimately so thoroughly certain in its effects, as an act of incorporation for the London College of Medicine—an institution, be it remembered, which makes no direct attack upon the privileges of any existing establishment. The Fellows of that College pray not for the repeal of the Apothecaries' Act of 1815, solicit not the abrogation of the charter of the College in Lincoln's Inn Fields, seek not the destruction of that granted to the College of Physicians by Henry the Eighth. The old musty records of ancient date, and the iniquitous statutes of modern times, they seek not to expunge from the statute-book by means of a counter-measure to be carried in Parliament. Nothing so harsh is attempted, though, were even more than this prayed for by the community, a House of Commons elected by the public could scarcely hazard a refusal. Shall it be said, then, that in a reformed House, containing only a few men who will look to private rather than to public interests, the London College of Medicine will not receive that share of support which will place it in a position of honourable rivalry with institutions *confessedly* not answering the purposes for which they were designed? But we boldly contend, that if an act be not obtained for this College—that, in a word, if the cause of medi-

cal reform be not now speedily and completely triumphant, the fault will not rest with members of Parliament, but with the members of our own profession. As unquestionably, were they, by thinking on this subject, to stimulate their minds to a proper sense of duty, they would arise from their lethargy in a body, explain to candidates the objects for which the LONDON COLLEGE OF MEDICINE was founded, and obtain from them a pledge to support a bill for its incorporation. It will not be sufficient to refer to medical reform as an abstract question; ten or fifteen minutes must be devoted to its explanation, and the injury to the public, arising from the present monopolies, must be clearly and zealously enforced. Once enlisted on the side of this glorious struggle in the cause of humanity and science, no candidate having the heart of a man, or the head of a reasonable creature, will abandon it on slight grounds. What are the facts? The children of poor parents—no matter what their talents—are now precluded, by law, from entering the medical profession. If the obstacles, now raised under the authority of the charters and acts of parliament of the monopolising colleges and companies, had existed when JOHN HUNTER was a young man—the great, the immortal HUNTER—that man whose labours produced the unrivalled museum in Lincoln's Inn Fields, and the strength of whose genius has enabled his successors to save the lives of hundreds, and spare the sufferings of thousands—if, we repeat, such scandalous, such restrictive, such plundering regulations had been then in force, JOHN HUNTER himself could not have been a member of the English medical profession. This fact, with the self-evident inferences deducible from it, should be enforced, until every point is fastened upon the memory. When it is considered that it is only through the exercise of talent of the first order that great discoveries in medicine can be effected, and when it is further considered how immensely advancement in medical science has tended to mitigate the afflictions of our fellow-creatures, how perversely, how blindly base do those men appear, who have laboured assiduously to construct nothing but barriers to its progress! But equally base, and not less blind to the true interests of humanity, are those individuals who permit such a work of barbarism to proceed, while they possess the power to cast it into the dust.

We cannot suppose that members of Parliament will ever feel a desire to perpetuate abuses of which they themselves may be the victims, and from which they can never by any possibility derive advantage. Once instructed that great talents are requisite for the just and discriminating performance of medical duties, they assuredly will endeavour to throw wide open the doors of the temple where none but the talented are invited to appear. If the LONDON COLLEGE OF MEDICINE imposed a single restriction upon candidates for the diploma, other than that of exacting a thorough knowledge of the science, we would be as free in denouncing it, as we are now bold in holding it up to encouragement. In these modern times of advancement, the public have been taught to denounce, as amongst the bitterest enemies of their country, those who uphold monopolies in the commonest articles of trade. The East-India monopoly is denounced; the Bank charter monopoly is reprobated; the Water company monopolies are repudiated; and yet the monopoly of *fees* by the existing medical colleges, extorted by means of base and iniquitous taxes upon mental accomplishments—in a word, a *duty* upon *mind*, passes without notice before the eyes of our wise legislators, and without eliciting a word from the seeming discernment of our contemporaries of the press! For what, then, after all, do we set up a claim? Simply this—FREE TRADE IN MEDICAL

KNOWLEDGE; or rather we solicit even less than this, for we only require that every man, who may display, in a public examination before the scrutators of the LONDON COLLEGE OF MEDICINE, a knowledge of his profession, be empowered by law to exercise his skill in healing the sick. As matters now stand, no young man can pass the door of the Apothecaries' Company, to receive his warrant for practice, without having cost his parents or his friends not less than *one thousand pounds*,—money almost wholly expended in forms or ceremonies, in compliance with the by-laws of individuals, who, in too many instances, have the effrontery to pocket the fees which are thus so infamously extorted.

We must resume this subject; meanwhile, as *canvassers*, we find, are already in the field, we appeal to the members of the medical profession,—with a conviction that we shall not call upon them in vain, and implore them to withhold support from those candidates who withhold *their* promises of aid from the cause of MEDICAL REFORM.

The Anatomy of the Thymus Gland. By Sir ASTLEY COOPER, Bart., F.R.S., Serjeant-Surgeon to the King, "Consulting-Surgeon" (?) to Guy's Hospital, &c. &c. &c. London. Longman and Co. 1832. 4to. pp. 60. plates 5.

SERJEANT-SURGEON Cooper does not enjoy the *otium cum dignitate* of his sinecure. In vain he endeavours to liquidate his heavy debt of time by basking in the smiles of the court, and inhaling the perfumed atmosphere of the drawing-room; in vain he woos the honours of the peerage; in vain "he dips now and then into Celsus." All will not fill up the great *hiatus* in his peace, "the craving void left aching in his breast." Even in the midst of the sumptuous banquet, the portly baronet sighs for his old pursuits, and an ideal scalpel points the way to the aromatic enjoyments of the dissecting-room. This despotism of habit is a wise law of our nature, and upon the whole, its consequences are more favourable than otherwise to mankind. Successful men have, thus, an ever active spring of motive to exercise their powers whilst they retain their validity. Sir Astley forms but one in a host of examples illustrative of this truth. By the bye, it is said, that the baronet pants for a higher title than that he already boasts. If he can persuade some friend at court to procure for him the "desire of his heart,"—why let him have it. He will make a very harmless "conservative." His first motion might be for leave to bring in a bill to permit an anatomical examination of the heads of the most conspicuous of his brother peers." It would lead to some curious disclosures.

Anxious to dispel the *ennui* which oppressed him, Sir Astley was wont to lounge at his butcher's shop, where his imagination was regaled with vivid associations of former days. On one of these occasions, Sir Astley's attention was excited by a remarkably large thymus gland in a calf. A crowd of forgotten notions respecting the uses of this curious structure, rushed upon his memory, his speculations were renewed, and he was led to a course of inquiry, which ended in the production of the important results which constitute the subject of this little book.

Sir Astley's attention was directed early in life to the function of the thymus gland, by observing that a great quantity of fluid always escaped when that organ was incised. In the calf, the examination of this gland was comparatively easy, but there is no part of the human subject so difficult of investigation. Its small size, the delicacy of its texture, its soft and pulpy nature, which renders it liable to tear under the slightest force, and the numerous small lobes which are combined to form it, all conspire to produce this difficulty, and to render it necessary to call in the aids which injection, hardening, unravelling, and the most careful and repeated dissection, can furnish. The author began his inquiries in the calf, and in the lamb, and soon found the difficulties of the investigation were greatly diminished. Proceeding from the gland of the quadruped to that of the human subject, he ascertained the comparative

difference in its formation, as well as the points in which they resemble each other.

When the size of this organ is considered, when the quantity of fluid which it secretes, both in the human body and the quadruped, is recollected, when the important situation it occupies near the heart, and upon some of the largest vessels of the body, is remembered, as well as its appearing at the fœtal and infantile period only, it cannot be doubted, that the function which it performs is highly essential to the existence and growth of the fœtus and infant.

Sir Astley proceeds to consider consecutively, the general form of the thymus gland in the fœtal calf; the organization of the gland in the same animal; the comparative anatomy of the gland; the structure of the same gland in the human subject; its relative situation; the fascia of the thorax; the dissection of the thymus gland in the human subject; its physiology; and, finally, its diseases. We cannot withhold our meed of praise from the industry and ingenuity displayed through the whole of this excellent pamphlet; we avow our concurrence in the truth of his statements and conclusions, and propose to lay before our readers a few extracts from the most interesting parts, if any such parts can be chosen, where all is so engaging.

"The thymus gland of the calf is composed of a thoracic portion, of an isthmus, of a cervical part, and of two cornua. The gland reaches from the anterior mediastinum to the angle of the lower jaw, extending by its cornua on each side of the neck, and at the angle of the inferior maxillary bone, it doubles upon itself, so that its length is thus somewhat increased.

"In describing the situation of this organ, and of its different parts, I shall suppose the animal lying on its back.

"The thoracic portion of the thymus is placed under the upper part of the sternum, and it is generally somewhat inclined to the left side. It is situated in the anterior mediastinum, and consequently has the pleura placed upon its sides as it is reflected from the cartilages of the ribs to the pericardium.

"Posteriorly, it is attached to that membrane by cellular tissue; and inferiorly it is connected to a strong fascia, which extends from the cervical entrance of the thorax upon the external jugular veins, and on the arteries from the curvature of the aorta to the aorta itself.

"On the sides of the thoracic portion of the gland, pass the internal mammary arteries and veins, which supply it with branches of blood-vessels, whilst numerous absorbent glands appear between the thoracic portion and the termination of the jugular and subclavian veins.

"The isthmus of this gland produces the communication between the thoracic and cervical portions. It is of very small size compared with the two parts of the gland which it joins. It is placed opposite the upper bone of the sternum, adheres to the vena innominata, and the internal jugular vein descends on each side of it towards the heart. The isthmus passes through a very distinct aperture in the fascia, which is stretched over the opening of the neck to the thorax, and extends upon the jugular veins from one vessel to the other, forming a very strong ligament confining this portion in its situation.

"The cervical portion is placed upon the fore part of the trachea, where it is covered by the sterno-hyoidei and sterno-thyroidei muscles, and the carotid arteries and internal jugular veins pass near to its outer side.

"The cornua of the gland occupy each side of the trachea and larynx; they are covered near the sternum by the sterno-mastoidei muscles, which recede from them near the head, and are placed, more externally, opposite to the division of the common carotid artery into external and internal, and near the os hyoides the cornua are curved upon themselves so as to be doubled at their ends, to add to their length, and to increase their surface for secretion, and there they terminate."

Sir Astley next proceeds to consider the organization of the thymus gland in the fœtal calf. The organ possesses a general covering of coarse cellular membrane, by which it is united to the surrounding structures, and by which the component parts of this conglomerate gland are held together.

"Beneath this coarse envelope a reticular tissue is found, entering into the composition of the lobes so as to connect them with each other, and to unite the different parts of their structure.

"*A vessel of communication* subsists between the different lobes, which is formed of mucous membrane internally, and of a secretory structure more externally.

"The different lobes of the gland are tied together by a ligamentous structure which supports the blood-vessel, and the vessel of communication, and prevents the possibility of laceration. These lobes are most distinct in the cornua, and least so in the isthmus. The larger lobes are also divisible into smaller ones."

If alcohol be injected into the lobes numerous large cavities will be discovered, from which a great quantity of milky fluid will escape. This structure is the most essential part in the formation of the organ.

"When each lobe is unravelled, the external surface is found to be composed of small secreting cells, and within it are placed numerous cavities which are lined by delicate mucous membranes. Those which are placed in the interior of the lobe are reservoirs to the small cavities which are situated near the surface; they are of a considerable size, some as large as peas, but of an oblong form.

"The reservoirs vary in size, according to their degree of distention, but they are so thin, and yield so easily, that when opened they immediately fall together, so as not to be apparent without injecting them.

"Their number in each lobe varies, according to its magnitude; the secerning cavities upon the surface are small and circular, but the reservoirs open into a central cavity, from which proceeds a vessel of communication, passing from lobe to lobe. If quicksilver be thrown into one lobe, it passes, although not very readily, into several of the larger on each side of it.

"Each lobe, then, is made of numerous small secreting cells, and of larger cavities or reservoirs, and each of the larger lobes is connected by a tube surrounded by a portion of glandular substance. Thus the organ is constituted of lobes, having secreting cavities on the outside, reservoirs within, and a vessel of communication from lobe to lobe.

"The cells and reservoirs are lined by an extremely delicate mucous membrane, being as pellucid as the coat of an absorbent vessel, and somewhat elastic. The communicating vessel is equally delicate with the lining membrane of the cavities, and the parts would not be held together but for the additional ligamentous structure."

Sir Astley, in order to render the vessels and cavities visible, had them hardened and rendered opaque by alcohol, to which sometimes a solution of alum or corrosive sublimate was added. Another mode that he employed was, to inject the cavities with quicksilver, harden them in spirits of wine, and then, cutting the gland through the centre, they were easily seen and readily exhibited. Sir Astley's method consists in passing into the lobes a fine steel pipe. A column of quicksilver of from *seven* to *ten* inches should be employed; if the column exceed *ten* inches it lacerates the lining membrane. The tube is made to pierce the covering of one of the smaller lobes, the quicksilver immediately enters the secreting cavities and reservoir, and after filling one small lobe, it passes by the vessel of communication into the nearest large one. Thus two or three may be readily filled, and then the tube should be withdrawn and introduced in the same manner into a lobe two or three from the first, until the whole gland is injected. This is most easily accomplished in the cervical portion. After being filled with quicksilver, the gland should be dried, and a slice of its surface being removed all its cavities will be shown.

The author occasionally injected these bodies with alcohol, sometimes with coloured glue, but he succeeded most satisfactorily with coloured wax. In this way he filled the secretory cells, the reservoirs, and the communicating vessel, and made the injection pass from lobe to lobe, so as not only to show the structure of a lobe, but the communion of the lobes with each other, and the general formation of the organ.

"The blood-vessels of the thymus gland are derived from various sources. The arteries of the thoracic portion, of the isthmus, and of the sternal part of the cervical lobes, spring from the internal mammary; the arteries of the remaining part of the cervical portion derive their origin from the common carotid, whilst those of the cornua arise from the superior thyroideal and external carotid arteries.

"With respect to the veins of the gland, they return the blood from the thoracic portion into the internal mammary veins which accompany the arteries of the same name. There is also a vein peculiar to this gland, and which is placed parallel with the cervical part and with the cornua. The true vena thymica returns the blood of the isthmus, cervical portion, and the beginning of the cornua, into the internal jugular veins, whilst some of those cornua empty themselves into the superior thyroideal and jugular veins.

"Numerous absorbent glands are found on the spinal surface of the thymus, and if injected, many absorbents are discovered. On the posterior surface of the cornua and cervical portion, two large vessels proceed in each corner, and the side of the trachea towards the junction of the jugular veins with the superior cava; they terminate in the jugular veins at their junction with the superior cava by one or more orifices on each side.

"These vessels are formed to convey the fluid of the thymus gland into the veins. Although their size is so large as readily to admit of their being injected with wax, yet I believe them to be more of the structure of absorbent vessels than of excretory ducts.

"An excretory duct is in itself a gland (the ureter, for example); it is generally a muscular tube on the outer side, and a secreting membrane within; is free from any valvular apparatus, excepting at its termination, like the ureter and common duct of the liver. But the vessels I am now describing, although of large size, are transparent, and possess valves, and, above all, if quicksilver be thrown into the absorbent gland of the thymus, small vessels are filled from them, which open suddenly into a tube of considerable diameter, forming the two vessels I have mentioned; and, further to show that they partake more of the nature of absorbent vessels than the structure of an excretory duct, they cannot be injected but in their course towards the veins from the valves which they contain. Around the thoracic portion, numerous absorbent glands are found, which send vessels into the veins at the junction of the jugulars with the superior cava. These vessels I consider, and shall name, the absorbent ducts of the gland, and they are the carriers of the fluid from the thymus into the veins of the lower part of the neck."

Sir Astley has examined the gland in other animals, and the following is the result:—

"In the dog it is divided into two thoracic, and two cervical portions; it is relatively much less in this animal than in the fœtal calf. It consists of lobes which are but loosely connected, and they admit of being easily unravelled. In the lobes small cavities are found, which may be injected with quicksilver or alcohol.

"In the dog of six months old I found cavities of considerable size, and the gland, though larger than it usually is at birth or in the fœtal state, was hollow, and had little solid matter in its composition. In the kitten, the gland resembles in form that of the human subject, and contains numerous small cavities. In the ass the gland is broad, thin, and flat; it is divided into numerous large lobes, which are further subdivided into smaller. Each of the lobes contains many cavities which are of considerable magnitude. The thymus gland in the lamb bears a close resemblance to that of the fœtal calf, being composed of a thoracic portion, of an isthmus, of a cervical portion, and of two cornua. It is divided into large lobes, and then into smaller, and they contain secretory cells and reservoirs, which are easily injected with quicksilver, and which differ only from those of the fœtal calf, in being absolutely less, although relatively to the size of the animal, they bear the same proportion.

"In the pig, the gland is formed of two thoracic portions, of an isthmus and two cornua; its lobes are of considerable size, and minutely divided into smaller ones, and the gland is large in proportion to the weight of the animal. It contains secretory cavities so full of fluid, that it is difficult to inject them."

We shall continue our extracts from this little work in a future Number.

ROYAL INSTITUTION.

June 8, 1832.

LECTURE ON THE HISTORY, ORIGIN, PROGRESS, AND PRESENT STATE, OF LITHOTRIPSY.

By D. O. Edwards, *Esq.*

Mr. Chairman. Two years ago Mr. Burnet did us the kindness of giving in this theatre a demonstration of the lithoatritic apparatus then in use. Since that time, several modifications have been made in the old instruments, and others have been constructed upon new principles. Many operations have been performed upon patients of all ranks, and much additional experience has in consequence been acquired. Many things that were then problematical, are now matters of fact; and, in short, our knowledge in relation both to the principles and the practice of this branch of surgery is so much extended as to give it an almost entirely new aspect.

In order to afford a distinct idea of the present state of lithotrity, I may perhaps be permitted to take a transient retrospect at the old methods employed in the relief of the formidable disease which it is the object of our labours to remove, as well as to glance at the origin and progress of the new method.

Stone in the bladder, arising as it does from purely physical causes, is a disease pretty nearly as ancient as the human constitution itself. In times when men were entirely ignorant of anatomy, it would be long before the group of symptoms characteristic of this malady could be accurately referred to their true cause. The two circumstances most likely to afford a clue to the just interpretation of these symptoms are, the occasional escape of small calculi through the urethra; and the occurrence

of the same malady in certain quadrupeds.

The nature of the complaint once fully understood, it would not perhaps be difficult to conceive the means of relief that would first suggest themselves. The use of narcotics was very early known, and it is reasonable to suppose that these and other anodynes conveyed into the alimentary canal, would be selected as remedies.

The idea of dissolving the calculus implying a degree of chemical knowledge, would probably be a much later suggestion. The fugitive good effect or total inefficiency of such remedies, which only act indirectly and remotely through the nervous system, or by passing through the round of the circulation, would naturally lead to the contemplation of more direct and decisive measures.

To extract the stone through the natural avenue, and to break it in pieces for that purpose, are very obvious indications; but the deficiency of mechanical means at early periods would render such a plan impracticable, and occasion its immediate abandonment. A less obvious method of relief, it is true, is that of cutting into the bladder, in order to effect the extrication of the stone, but it was the only remaining alternative for the patient's torments.

The incision through the perineum was the first means adopted for penetrating into the bladder; that is, if we may trust the early records of medicine, which are nothing more than collections or compilations of current traditions. The method of Celsus, vulgarly called cutting on the gripe, is evidently but a slight improvement upon the rude means originally adopted, and is indeed the only operation that could have been performed by any person ignorant of anatomy. The prominence produced on the perineum through the traction of the stone by the fingers, would with very little knowledge of the parts afford a sufficient guide to the operator's knife. It is not to be imagined, that many patients could be found willing to submit to such a barbarous process, and of which the consequences were often as disgusting and calamitous as the disease itself.

In the course of ages, but few modifications were effected in the practice of lithotomy. The high operation, or incision above the pubes, is comparatively of modern origin, and may in point of safety and success be considered on a par with the more ancient plan.

The proportion of deaths to recoveries in these operations was always considerable, and amounts, even in the practice of the most accomplished surgeons of the present day, to the ratio of *one* in *seven*.

In the Norfolk and Norwich Hospital, where, from the number of cases, the surgeons have always been celebrated for their skill in lithotomy, the proportion has been but a little more favourable.

During a period of 44 years, from 1772 to 1816, five hundred and six persons were cut for stone in that hospital; out of these, seventy died, being a proportion of *one* to *seven and a quarter*.

In the practice of Mr. Chesselden, the most successful lithotomist of his time, out of 213 cases which he treated in St. Thomas's Hospital, 20 died, being a proportion of nearly one in ten.

Mr. Lynn, senior surgeon of the Westminster Hospital, who for coolness and dexterity as an operator has never been surpassed, informed me the other day, that at the commencement of his professional career, he performed thirty operations successively without losing a patient; but immediately afterwards he had a series of seven fatal cases. He also acquainted me that the average of fatality in his practice, during 50 years, has been one in eight.

From these statements it will be evident that lithotomy, under the most favourable circumstances, is rather an appalling remedy; and it is not surprising that patients should rather continue to bear all the anguish of their actual sufferings than resort to such a perilous alternative. Singular instances of long suffering, arising from the repugnance of patients to submit to lithotomy, are on record. One very striking example it may not be amiss to allude to, as affording a very apposite illustration. A baronet residing in one of the midland counties, suffered from this disease for a period of fifty years. The stone grew to such a size as to fill the whole bladder; the ureters or conduits coming from the kidneys became distended into reservoirs, and when the patient wanted to relieve himself of their contents, he was obliged to rest his head on the ground, and raise his pelvis to the utmost extent of his lower limbs. He ultimately submitted to lithotomy, and the perineal operation was performed by the late Mr. Cline. As much of the substance of the stone as would fill a breakfast cup was scooped away; but the patient derived no material relief, and died soon after.

No means of removing this fearful malady less severe than that described, was resorted to during a long series of years, though many speculative plans were probably entertained. Mr. Edwards here gave a general history of the origin of the lithontriptic art, alluding to the labours of Leroy, Civiale, and several others, of which accounts have already appeared in this Journal. Mr. Edwards also minutely described the routine of practice adopted by the continental lithotritists, and pointed out its various

defects. He then enlarged upon the plan of treatment established by Baron Heurteloup. He observed, that in contemplating the performance of this operation, two subjects pressed particularly upon the attention of the surgeon. First, the bearings and condition of the bladder, the chamber in which he is to work. Secondly, the nature and properties of the calculi which are the objects of our search.

The lecturer apologized to the audience for alluding to anatomical points, and gave a general description of the relations of the bladder in health, and its modifications by disease. It was not to be supposed that a concretion could go on accumulating in the bladder without deranging its health; and it was a pretty general rule that the larger the stone the more contracted was the bladder, and it not unfrequently happened that the relative magnitude was so much altered, that the one could not be turned in the other. In some cases the organ was irritable and spasmodic, presenting a partial hypertrophy, or thickening of its muscular fibres. At other times it was perfectly helpless and paralytic.

The second subject related to the nature and position of the stone. Chemists have classified these bodies according to their constitution; but these relations, though highly interesting in themselves, are of secondary importance to the lithontritist, except in so far as they tend to modify their mechanical properties. In nine cases out of ten calculi are composed of uric acid, or the triple phosphates, or of both. Simple uric acid calculi are shown by the experience of lithotritists to be smooth on the surface, laminated in texture, frangible, and generally flat. Those consisting of ammonio-magnesian phosphate, are hard, compact, crystallized on the surface, and spheroidal. The calculi formed by a combination of these constituents, tend to flatness, or sphericity, according to the predominating ingredient. Of the other urinary concretions, the bone-earth and the oxalate of limestones are generally spheroidal. The first is easily broken, but the last is more cohesive. Calculi of other kinds occasionally infest the human bladder, but they are so rare, and generally so small, as to occasion little trouble to the operator. It is sufficient for the purpose of the lithontritic surgeon to distinguish these bodies into three classes, the *spherical*, the *oval*, and the *flat*; for it is principally in respect to form and size that they influence his manipulation.

The position of all moveable stones is chiefly determined by their gravitation, unless when they are held by a convulsive action of any part of the organ. When the patient is erect, they are in the *bas-fond*, or pouch. When he expels his water they are impelled into the neck, and, in short, their place is generally influenced by the posture of the patient. Spheroidal stones are usually moveable, but those that are flat and oval are most commonly fixed in the *bas fond*, and not unfrequently held against the prostate gland by a morbid contraction. Occasionally the stone escapes into a herniary sac, and then it ceases to annoy the patient, as in the celebrated case treated by Mrs. Stevens.

Mr. Edwards proceeded to make some observations on the proper position of the patient, and alluded to the rectangle bed, and *point-fixé* of Baron Heurteloup. He stated that the process of the operation might be conveniently divided into the following stages. First, the injection of the bladder. Second, the exploration of that organ and its contents. Third, the seizure of the stone. Fourth, its destruction. Fifth, the removal of the resulting fragments and mollecules. Some germain observations were here made touching certain prejudices that prevail on the subject of the bladder. The application of sudden force in the interior of so delicate an organ was long considered as utterly impracticable; and all that anatomists could bring themselves to contemplate was, the exertion of a regulated friction upon the calculus. The intimate acquaintance, however, recently acquired as to the structure and use of these parts, has led to the adoption of highly energetic measures.

A description was next given, seriatim, of all the instruments employed in the lithontritic process. Their construction was explained, and mode of action illustrated. In this waywere brought under review, the recto-curvilineal catheter, the surgical syringe, the perce-pierre, the trois-branches à virgule, the evideur à forceps, the perforator, the crête de coq, the percuteur droit, the pince-servante, the brise-coque, the percuteur courbe à marteau, and the sonde evacuatrice, of all of which the *modus operandi* has been explained in this journal.

In conclusion the lecturer observed, it was remarkable so little success should have attended the endeavours of surgeons generally in this branch of their profession, and then proceeded thus:—

An examination into the causes of their failure would form an interesting subject of inquiry. That it is not due to any want of ability is evident from the eminence of those who have made unsuccessful attempts. To prove this we need only mention the names of Dupuytren, Roux, and Lallement, who are amongst the most able surgeons in Europe. If I might presume to form an opinion on the subject, I would suggest, that their failure was due to two causes. First, the

peculiar habits induced by surgical manipulations; second, a want of acquaintance with the condition of the living bladder, especially whilst influenced by the presence of calculi.

There is nothing singular in the dependence on the touch only which is observed in lithontritic operations; for the obstetric surgeon, in his manœuvres, is equally deprived of the assistance of sight. Indeed the education of the touch generally, is a subject of so much importance in the practice of surgery, that a power of discrimination through this sense has been termed the *tactus eruditus*. The manipulation of these instruments, therefore, out of sight, is a task that may be easily mastered.

There is this peculiarity in almost all surgical instruments, that they have no moving property, except what they derive from the hand of the surgeon. The knife and the forceps move in exact obedience to his volition, and produce an effect no greater or less than that which he meditates. The importance of this circumstance may be conceived, when a tissue as fine as a spider's web under the knife, is the difference between life and death to the patient. The intervention of elasticity, or any other eccentric mobile property, would materially increase the difficulties of the case. The surgeon's hand is, therefore, not prepared immediately to adapt itself to these secondary properties. The difficulty in manœuvring lithontritic instruments appears to me to arise, if difficulty exist from their possessing this property of elasticity. A mechanic would probably find less difficulty in their management than a surgeon. The knowledge of the anatomy of the bladder is usually derived from an examination of the dead organ. In the usual mode of showing this organ, it is distended to the utmost, and consequently but one of its relations with the surrounding parts is exhibited. In the living state, since the sides of the organ exactly adapt themselves to its contents, its shape must constantly vary according to the quantity of fluid it contains. While the organ is empty, it forms a disk applied on the posterior aspect of the pubic bone, and presents a concavity in that view. As it enlarges, its form varies according to certain laws, which it is beside my purpose to specify.

That rash attempts with these apparently complicate instruments, without preliminary practice, or a clear conception of the field of action, should have been unsuccessful, cannot excite surprise.

At the conclusion of the lecture, Mr. Faraday came forward and made the usual address on the conclusion of the season. He stated, that in consequence of the want of patronage * the publication of the Journal of the Institution had been abandoned. In other respects, he was happy to say the institution was in a flourishing condition.

The business of the evening was concluded at the request of Mr. Edwards, by a demonstration of the action of the lithontritic instruments upon real calculi, in which Baron Heurteloup exhibited such tact and dexterity.

ST. GEORGE'S HOSPITAL.

CLINICAL REMARKS

MADE BY

Mr. BRODIE.

May 31, 1832.

ABSCESS IN THE MEATUS AUDITORIUS.

A man was admitted with this abscess, arising from disease of the bone which had been caused by a blow, and a poultice has been applied to the part. Mr. Brodie said, that such an abscess frequently arose from disease of the bone, and that disorganization frequently went on to a very great extent; matter was formed between the dura mater and the bone; the membranes of the brain became inflamed, and death was the result. "I once attended a young gentleman," continued Mr. Brodie, "who had always been from his earliest youth remarkably dull and listless. He had a discharge from the ear, and as long as that discharge continued things went on very well. This discharge, however, one day stopped; he died very soon afterwards; and on examining his body after death, an abscess as large as an orange was found in one of the lobes of the cerebrum, and a small aperture through the temporal bone, leading to the meatus auditorius internus, was also discovered, through which the matter had been discharged. This aperture had been stopped up, and the patient had died from the collection of matter pressing upon the brain. But such cases as this are rare; one, however, somewhat similar to it has been in the hospital under the care of Mr. Hawkins; and after death abscess in the brain was discovered."

25. Mr. Brodie examined this patient again to-day; and after probing the meatus externus, to discover if there were any dead bone, and where it was situated, he found he could not detect any; and said that

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* We marvel at the use of such a word, on such an occasion, by Mr. Faraday. He should have said, "in consequence of the *want of sense* displayed by the public."—Ed. L.

he should not do anything further in the case at present.

"You know, Gentlemen, that one of the first rules of our art is to prevent future and further mischief and danger; and if I meddle any further with this case at present, I may produce inflammation of the membranes of the brain, and the patient may die.* This man, too, has some bad symptoms of mischief in the chest; and even in patients who are in very good health, I am very cautious how I meddle with such a delicate organ. I confess I do not like to do anything in this case. I feel more inclined to let this man wait and watch the symptoms as they occur. I knew a little girl who was in this hospital, and who had broken a piece of slate pencil in her ear; inflammation of the membranes of the brain came on, and she died."

A pupil here inquired, whether a foreign body might not be extracted from the meatus externus by the suction force of a syringe.

"Why, I do not know," replied Mr. Brodie. "You know suction is nothing more than the drawing off the atmospheric pressure from one part to have it applied with more force to another. If the foreign body, whatever it may be, completely fills up the passage, why then suction may do; but if the body is too small for this, and lets the air pass by it, why then your suction will be of no avail, and I do not know that it is a plan which I should recommend."

The pupil said that he had known a case in which a glass head had got into the ear, and had been removed by a syringe; and the gentleman in whose practice it had occurred, meant to follow the same plan whenever any future case of the kind presented itself to him.

After this digression the patient's chest was examined by Dr. Hamson (who was present), and Mr. Brodie asked the Doctor whether he had ever had an opportunity of examining the man's chest.

Dr. Hamson replied "that he had, and that in his opinion the man had incipient tubercles forming in the apex of the left lung; for if you strike the upper and outer end of *the clavicle* of that side, you will find a very different sound given out to that which will result from striking the opposite clavicle in the same place."

"But," remarked Mr. Brodie, somewhat astonished, "Do you strike *on the bone of the clavicle* to ascertain the presence of disease *in the chest*."

"Yes I do! and," added Dr. Hamson, somewhat pointedly, "the wise laugh at it" (Mr. Brodie and several of the pupils were smiling at the time*), "but it is only a proof of their ignorance, for it is under the *outer prominence of the clavicle that the apex of the lung is to be found*," and it is there that the disease in this instance exists. Pectoriloquism also over the middle of the clavicle, and over the great vessels, will also frequently detect the presence of disease."

Mr. Brodie and Dr. Hamson now proceeded to examine the patient's chest with the stethoscope, and having fully satisfied themselves of the presence of disease, the man was sent back to his bed, and Mr. Brodie then made the foregoing remarks on the case. The man has a pale phthisical appearance; he complains of great pain in the situation of the intercostal muscles when he coughs; he expectorates a great quantity of frothy pus and mucus, and sweats profusely at night. He was ordered to be kept quiet, his bowels to be kept gently open, and to take infusion of roses, with diluted sulphuric acid and syrup in a draught. When ordering these medicines, Mr. Brodie asked whether the apothecary put syrup or sugar into the medicines, adding that he merely ordered it in this instance to cover the taste of the acid. Mr. Fernandez answered that *they never put in either one or the other, except it was underlined in writing the prescription.* In this instance the syrup was underlined, so that the poor man will stand a chance of having it put into his medicine.

Another instance of culpable neglect in hospital practice!

Some few days since, Mr. Brodie, afte dividing the sphincter muscle in a case or fistula in ano, ordered the patient to take the sulphate of quinine. Upon visiting him some days afterwards, Mr. Brodie seemed surprised that the quinine had been of no benefit to him, when the man handed down *the paper* in which the pills were, and *they were found to be as hard as stones, and had evidently been made up for some weeks past*; they were so hard, that those he had taken had in all probability passed through the intestines without being in the slightest degree acted upon. Mr. Brodie immediately ordered the pills to be discontinued, and the quinine was prescribed in another form. Mr. Brodie said that he was once consulted by a gentleman respecting an intermittent affection, for which he prescribed quinine; the gentleman had the prescription (pills) made up at Savory's, yet he derived no benefit from the medi-

* Mr. Brodie ought to have made some mention of the *ear* operation performed at St. Bartholomew's by the "Little Cock Sparrow."—Ed. L.

* Cruikshank only could have done justice to the scene that presented itself at this moment.

cine, and on its being given in a different form, he recovered rapidly.

Amongst the different officers connected with the hospital, we find the following visiting apothecaries:—

E. A. Brande, Esq.	John Nussey, Esq.
H. P. Fuller, Esq.	M.W. Andrews, Esq.

Apothecary (who resides in the house), Mr. Hutchins.

Assistant-apothecary (ditto), Mr. Hamilton.

Now here are six gentlemen whose duty, we presume, to be to see not only that the patients are supplied with the medicines ordered for them by the physician or surgeon in attendance, but also to see that those medicines are made up *correctly*—whether the different substances ordered in the prescription be underlined or not; and if such be their duty, who will not say that in the above instances that duty has been most shamefully and disgracefully neglected? What a miserable subterfuge is this underlining system—what a despicable artifice to save the hospital funds at the expense of a poor patient's feelings. Out upon all vile charity-mongers.

ABSCESSES IN THE LOINS.

"In opening such abscesses as these," Mr. Brodie remarked, "Mr. Abernethy used to be very fearful of air getting into them; for my own part, I open these abscesses in the same simple manner that I do all others, and leave them to heal or to remain open just as the result may prove."

June 1st, 1832.

MINERAL ACIDS.

In the case of the scrofulous disease of the ancle joint, which we adverted to in a former number, Mr. Brodie asked Mr. Fernandez what medicines the man was taking. "A pint (?) of infusion of roses, with one drachm of diluted sulphuric acid every day." "Oh! but be careful not to increase the dose of the acid beyond one drachm." "What benefit have you found to result from giving large doses of the acid?" asked Dr. Hamson. "Why I really never gave it in large doses," answered Mr. Brodie; "What I have ordered has generally been the nitric acid, and I do not know that I place much reliance upon that. In some cachectic or mercurial diseases, acid, they say, is sometimes of benefit, but I cannot say that I have ever found any very good effects to result from the use of it. I will tell you where I have found acid of very great service, and that is in cases of offensive, stinking, alkaline urine, where I have changed its character to acid by giving from ℿxlv to ʒj of nitric acid in the day. In one case I recollect that it had this effect in twenty-four hours."

DISEASE OF THE LOWER JAW.

A man was admitted on Wednesday last with a tumour on the left side of the lower-jaw. Mr. Brodie saw him to-day: the tumour burst and discharged before he came to the hospital, and through the opening Mr. Brodie believes he can detect diseased bone with the probe. The last molar tooth but one being loose, Mr. Fernandez extracted it. The body of the tooth was sound, but the fang appeared as if it had been in contact with diseased bone. The man's health is good, but Mr. Brodie said he had known a case somewhat similar, which nevertheless had turned out to be malignant.

TURPENTINE IN RHEUMATISM.

"I order the spirits of turpentine in rheumatism for a two-fold reason,—first for its local action on the part, and, secondly, because I believe some portion of it is absorbed, and does good in that way."

OLD CUSTOMS TO BE RESPECTED.

On examining a patient's fractured leg, Mr. Brodie remarked to the house-surgeon, that there was no foot-board attached to the junks to support the man's foot. Mr. Fernandez said, that the man did not feel the want of it then. "Oh, but that is no reason why he should not feel the want of it hereafter. In these cases the foot gets tired, and cannot support itself, and, besides, its weight if not supported, tends to draw down the bone, and thus prevents the reunion of the fracture; further, *you may be sure that there is always some good reason at the bottom of all these old rules and regulations, and therefore they should not be departed from, except some equally good reason for so doing can be assigned.*"

FRACTURED RADIUS v. DISLOCATION OF THE WRIST.

A man was admitted into the hospital with fracture of the radius just above the carpus. Mr. Fernandez had put on two splints and a bandage, and slung the patient's arm to his side in the usual manner. Mr. Brodie, however, took these off and said, "Gentlemen, this is a case of what they call dislocation of the wrist, and, strange to say, books and authors of the present day, even down to Sir Astley Cooper, still speak of dislocation of the wrist; now, for my own part, I never saw such a thing, nor do I think such a thing can occur, for in the wrist the ligaments are much stronger than the bones, and, there-

fore, where any force was used, the bones would certainly give way first.

Now I will show you the way in which I do up these fractures; it is a plan too which I have always followed with success. You see that here is one projection below, arising from the dropping down of the fractured end of the radius, and here is another projection above, of the carpus. Well, now, I put a compress above and below on each of these projections, then I put a piece of strapping to each; the piece of strapping below I fasten over the splint above, and the piece of strapping above I fasten under the splint below, and thus steadily confine them, and I then put a roller over the whole. When the man's arm was thus put up, he expressed himself much easier. "About ten years ago," said Mr. Brodie, "a man came into the hospital, with a very severe accident. I believe it was an injury of the head, a compound fracture, or something of the kind. However, this man had two large bulging lumps, one above the wrist and the other below the radius. On examining the body after death, I cut across the muscles and tendons, and there I found a large quantity of extravasated blood; and down dropt the hand, and there was a fracture of the radius, just as in this case. A medical gentleman once sent to me to say, that he had a case of dislocated wrist, which he could not reduce, and from his description I was led to believe, that it was a subluxation. This patient died, and the medical gentleman examined the body; and on opening the wrist, he found just such a fracture of the radius as this."

To some remarks from some of the pupils who said they had seen a child's wrist frequently dislocated, Mr. Brodie said, "that such cases might be, but that he had never seen them;" adding, "Indeed, I believe Dupuytren says he never saw one."

DISLOCATION OF THE METATARSAL BONE OF THE GREAT-TOE — EXCISION OF THE BONE.

A man was brought into the hospital a few days ago with a dislocation. Mr. Fernandez, who saw the case immediately, states that the bone was fixed *transversely*, and so firmly that he could not move it, and, therefore, he thought that the best practice he could adopt was to *cut down on the bone, and take it out*, which he accordingly did. On Mr. Brodie's visiting the man to-day, he said that he supposed from what Mr. Fernandez had said, that he could do no other than he had done; but that the loss of the bone would prove a very serious one to the man, as it would entirely deprive him of the use of his great-toe, which was more used in walking than all the others put together. Mr. Brodie here asked Mr. Fernandez whether he had left behind any of the periosteum. Mr. Fernandez replied that he had, because on this depends a great deal. If a portion of the periosteum be left behind, ossific matter may be again deposited, or, at all events, a ligamentous band may be formed similar to that which is formed when a portion of the lower jaw is excised. Let the man be kept quiet, and light dressings be applied to the wound. With reference to this case, we cannot help considering, that Mr. Fernandez's treatment was somewhat too prompt, and that he should have paused before he adopted the line of practice which he did. He states that the bone was fixed firmly, and could not be moved, being bound tightly down by the tendons, but we have heard nothing of how long a time elapsed from the period of the accident to the man's admission to the hospital. Of course Mr. Fernandez would amputate a dislocated *thumb* or *thigh*, *if*, in either case, he were to fail in his attempt at reduction.

BIRMINGHAM SCHOOL OF MEDICINE.

ANNIVERSARY DINNER AND DISTRIBUTION OF PRIZES.

THE public anatomical examination of the students of this school, conducted by Bransby Cooper, Esq., was held on the 4th of June, and nearly all the medical men of the town and several strangers, including Sir E. E. Wilmot, Bart. and Sir C. Throgmorton, Bart., were present. On the same day the anniversary dinner, given by the students to the lecturers, took place at Dee's Royal Hotel, and was attended by upwards of sixty students and friends to the institution. Dr. E. Johnstone presided, supported by Sir E. Wilmot, Bart., B. Cooper, Esq., Drs. Hasting, Conolly, John and James Johnstone, J. W. Unett, Esq., the Lecturers, and numerous professional men from the adjacent districts. Edward Townsend Cox, Esq., officiated as vice-president. During the evening the following prizes were awarded. The *Johnstonian* prize of ten guineas, by Drs. Pearson, Eccles, and W. S. Cox, Esq. to Mr. Wilkes; the prize of five guineas, offered by E. T. Cox, Esq., was adjudged by Sir A. Cooper to Mr. Hammond, also

Anatomy—B. COOPER, Esq., *Examiner.*
1*st Silver Medal*—Mr. Walton.
2*nd ditto*—Mr. Vaux.
Materia Medica—Dr. CONOLLY, *Exam.*
1*st Silver Medal*—Mr. Wilmott.
2*nd ditto*—Mr. Taylor.

Chemistry—Rich. Phillips, Esq., *Exam.*

1*st Silver Medal*—Mr. Bolton.

2*nd ditto*—Mr. Beddoe.

Midwifery—Dr. Bagnall, and Edward Grainger, Esq., *Examiners.*

1*st Silver Medal*—Mr. Taylor.

2*nd ditto*—Mr. Willmott.*

The general proceedings of the evening were extremely gratifying. Sir E. Wilmot signified his intention of giving a gold medal to be awarded on such terms as may be deemed most advantageous to the institution; an instance of judicious liberality which we have great pleasure in mentioning. It was pleasing to observe, as was remarked by this excellent baronet in his address at the dinner, that whilst the town of Birmingham is rising into political importance, it is also becoming greatly distinguished for its liberal institutions for the promotion of learning and the sciences. To those acquainted with Dr. Johnstone, it is unnecessary to add, that his presence in the chair, and his kind and affable demeanor, contributed much to the enjoyment of the day. The medical profession has reason to be proud of such a man, in whom years have not extinguished the love of knowledge, or those amiable sentiments which render knowledge a happiness to the possessor and a blessing to society, and whose long course has been unmarked by those petty jealousies which have distinguished some leading members of the profession of this town. The president in the course of the evening announced, that the following noblemen and gentlemen had been chosen to form the committee for the present year. Earl Bradford, Lord Lyttelton, Sir G. Shepwith, Bart., Sir C. Throckmorton, Bart., Sir E. Wilmot, Bart., F. Lawley, Esq., M.P., James Taylor, Esq., Drs. E. and J. Johnstone, Timothy Smith, Esq., T. W. Unett, Esq., Richard Wood, Esq., E. T. Cox, Esq.

The library, which is free to every member of the profession, has received a valuable collection of books from Lord Lyttelton, Sir C. Throckmorton, and others.

* The classes for the Practice of Physic, Surgery, Forensic Medicine, and Botany, are now going on; the examinations in these departments take place at the conclusion of the summer session.

TO CORRESPONDENTS.

So many theories have been projected on the subject broached by *Tyro*, that no additions to the number should be made public, unless the authors are most fully prepared to develop and support them in every particular. Mere suggestions will obtain no consideration.

University of London.—A correspondent informs us, that in consequence of *Mr. Noble* having very honourably declined accepting the gold medal in the class of *Anatomy and Physiology*, the gold medal was awarded to *Mr. Houlton*. The first silver medal to *Mr. Nestor*, and the second to *Mr. Rayner*.

Mr. Firth. An experiment of a very similar kind was tried some years since in Paris, and failed. It has been repeated in England, also unsuccessfully.

We shall, in the course of a week or two, accord to the work, mentioned by our Shropshire correspondent, ample justice. The Dun was, most probably, jealous.

Mr. C. It is not usual for us to announce in this place the publication of non-medical works.

A Pupil of the London Hospital is requested to favour us with his name and address confidentially. His communication shall certainly be published when it is authenticated.

Several letters respecting the *Naval Surgeons* have come to hand. We will endeavour to find a place for some of them in our next number.

Will *A Subscriber* be kind enough to favour us with his name? In confidence, of course.

Space shall be found for the "series of communications" alluded to by *Mr. I.*——, but it is hoped that they will not extend beyond the lowest number of pages mentioned in our correspondent's note.

"*ρ.*" seems competent to the task of discovering literary errors, but he is himself so great a culprit, that it would be equally unjust and injudicious in us to insert his paper. He has discovered blunders enough, in all conscience in Dr. M.'s work, but his own sentences are full of bad writing. They require, indeed, not less revision than the text under review. As our correspondent has evidently taken considerable pains in the production of his essay, we will take a couple of sentences at random from it, to show him the propriety of our decision. In folio 8, for instance, he says,

"This requires no *comment*, except, perhaps, an *expression of surprise*," &c.

Folio 9. "They demonstrate to a *French scholar*, that Dr. M. is as little acquainted with *that language*," &c.

Why, Dr. M. himself has hardly any thing worse than this in his book. However, putting aside this source of objection, it would be doing too much honour to the author whose work is quoted, to occupy three or four pages in showing his unfitness for a rank in which no one ever yet placed him. A selection of such blunders from one page of a book, is enough at all times to settle the literary claims of the work. A paper of a dozen folios is long enough to decide the pretensions of a score of such authors. We fully accord with the sentiments contained in the introduction to "*ρ.*'s" paper. We shall at any time be glad to hear from "*ρ.*"

Some of the opinions advanced by *Medicus*, "on the malignant cholera," can have no value while an anonymous signature is attached to them. Others do not need authentication, but we cannot divide his criticism.

Errata.—In Mr. Faraday's paper, May 18th, page 283, line 19, for "acopadium," *read* lycopodium. Line 30, transpose the comma after "transparent" to after "coloured."

In Dr. Knight's paper, page 301, col. 1, line 0, for "her aspect was *healthy*," read "her aspect was *deathly*." Line 6, for "cure," read "case."

London Hospital.—In the case of *hydrops articuli*, page 288, col. 2, it appears as if the *tinct. ferri muriat. concentrat.* had been discontinued. It should be "the *unguent. hydriodat. potassæ* did not appear to be of much benefit, and was consequently discontinued." The patient still continues taking the tinct. ferri. In the case of Watley, whose leg was amputated, *six* ligatures were applied.